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MURRAY N. RUBINSTEIN, D.D.S. (New York University, College of Dentistry, 1924) is a general practitioner who gives special attention to restorative dentistry. His second article to be published in DIGEST, REPLACEMENT FOR ANTERIOR TEETH BY AN IMMEDIATE ACRYLIC BRIDGE, appears in the current issue.

FLOYD ERWIN STRAITH, D.D.S. (University of Michigan, 1923) is widely represented in dental literature by the great variety of his published articles and case reports of situations encountered in dentistry. His article in the current issue, PAPILLOMA FROM DENTURE TRAUMA, describes the growth of hyperplastic tissue induced in the patient from artificial dentures.

PETER ADLER, M.D. (University of Vienna, 1934), D.D.S. (University of Vienna, 1936) is Assistant Professor of orthodontics at the Stomatological Clinic, the University of Debrecen, Hungary. In collaboration with ANDREW BAN, M.D., (University of Debrecen, 1945) Doctor Adler presents ACUTE PARAMYELOBLASTIC LEUKEMIA, a case report of a patient with unusual oral symptoms.

JOSEPH E. SCHAEFER, M.D., D.D.S., an oral surgeon of note who has been a contributor to DENTAL DIGEST since 1928, has collaborated with RALPH C. RUDDER, M.D., D.D.S. in presenting a series of articles describing the surgical techniques applied in specific oral problems encountered in their practice. DERMATOID CYST OF THE TONGUE in the current issue is the eighth article in the series.

M. HILLEL FELDMAN, D.D.S. (New York University, College of Dentistry, 1909) chief of the dental department of the Lincoln Hospital, Department of Hospitals, City of New York, has been a contributor to DENTAL DIGEST for almost twenty years. His article this month is EMOTIONAL FACTORS INVOLVED IN INHALATION ANESTHESIA.

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Present Status of Direct ACRYLIC RESTORATIONS

GREGORY B. SALISBURY, D.D.S., Philadelphia

DIGEST

Direct acrylics of today, prepared from a material made especially for the purpose, are radically different from former restorations made from coarse denture polymers, or from the finer mesh crown and bridge powder and the regular monomer.

The operative technique is similar but the acrylic resin, both powder and liquid, has undergone a great change. Instead of a modified denture polymer of spheroid globules that necessitated a mixing jar, and uncertain technique, there is now available a finely ground, irregularly shaped polymer that presents an extra third of surface to the action of monomer. This, with the addition of a suitable catalyst, gives a fast setting mix that can be easily blended in clear view on a glass slab with an ordinary noncorrosive spatula.

The polymerization of the newer monomers is no longer a simple straight chain polymer reaction. In conjunction with a dimonomer and a promotor, it produces a fast setting, hard restoration, because of its cross link reaction. The elimination of some of the pitfalls and shortcomings of methyl methacrylate has given the technique the importance it deserves.

The recent developments in the field of direct acrylics have prompted the following review of the present status of the technique which was first presented by the author in 1942 in a series of articles in **DENTAL DIGEST.**

FORMER EFFORTS to compromise with acrylic by the use of copolymers of other acrylates only softened the result. The use of methyl methacrylates, benzoyl peroxide, and tertiary amines, as suggested by the Blumenthal[1] report, and various fillers did not solve the problem.

Basic Relation of Self-Curing Acrylics

Monomer plus promoter, plus polymer, plus catalyst results in dough plus polymer. The production of the dough consists merely of a physical change. All of the chemical reactions occur in the monomer or the liquid which carries the promoter.

The Addition of Polymer—Polymer or powder is added to the liquid to permit easier handling and to produce a dough which is a mass of trapped polymer, catalyst, and pigment. This is bound tightly, goes into solution, and adds its own polymer type to the product.[2] The powder also helps to counteract shrinkage, which would be a disadvantage, if liquid were used alone. When methyl methacrylate is polymerized, a straight chain polymer results.

Modification of Reaction—One way in which this reaction may be modified to produce more desirable properties in the resulting polymer is through copolymerization. Considerable alteration will occur if a dimonomer is incorporated with the simple monomer. A dimonomer is one which is difunctional; that is, it contains two polymerizable portions in its molecular structure. When this type of monomer polymerizes, a cross-linked structure results.

The Mix

1. Methyl methacrylate monomer is more volatile than the promoter or the second monomer, the dimonomer. For this reason, the bottle of liquid should be kept closed to prevent the composition of the liquid from altering.

2. The liquid and the powder can be combined in noncritical quantities to produce the proper restoration material. For a satisfactory result, however, the following factors should be kept in mind: (1) Heat accelerates, and cold retards the process. (2) The glass slab should be from 65° to 75° Fahrenheit. (3) Cooler temperature gives a longer time range for insertion. (4) A warm slab will cause the mix to go quickly into the undesirable rubbery stage. (5) A thin mix will take longer to harden after insertion of the restoration. (6) Overspatulation of a thin mix will produce a satisfactory appearing insertion mass which will, nevertheless, harden slower than a properly spatulated heavy mix.

The Stages of the Mix—1. Sandy stage, when powder is moistened with liquid.

2. Dead pack stage which occurs after thirty seconds patting of the powder in liquid. This lasts nearly

[1]Blumenthal, L. M.: Recent German Developments in the Field of Dental Resins. Office of Military Government for Germany, U.S. Field Information Agency, Technical. First Report Number 1185 (May 27) 1947.

[2]Salisbury, G. B.: Polymerization of Individual Acrylic Restorations, DENTAL DIGEST **49**:60 (February) 1943.

two minutes which is ample time for insertion of the mass into the cavity. Toward the end of this stage it becomes cobwebby in appearance.

3. Stringy stage.

4. Dough stage. This ends three or five minutes from mixing time.

5. Hard stage.

6. Finishing stage, fifteen minutes later.

Method—1. Select the proper shade of the powder which is keyed to the silicate shade guide. If unusual tints are desired, regular acrylic stains may be used for blending.

2. Carefully lift the lid off the container as the powder is so fine that it will smoke or spatter over the slab if an attempt is made to use it in the same way as silicate material by tapping it on the slab.

3. Use a metal "mix miser" spoon or ladle. Place the approximate amount needed in a mound on the left side of the temperature-controlled slab, 65° to 75° Fahrenheit cool.

4. With a noncorrosive metal spatula, push a little of the powder into a reserve pile to the right.

5. Form a crater in the main mass.

6. Now open the tightly stoppered liquid bottle, and with a clean dropper, which has a colorless bulb, drop liquid slowly, drop by drop, into the center of the crater and watch it seep up the sides. Add a little to the sides until all of the powder is wet.

7. Start patting the powder into the free liquid. If the mix is too thin, add a little of the reserve powder. The ideal mix is 1.2 grams of powder to 1 cubic centimeter of liquid.

8. After thirty seconds of patting (not spatulation as may be done for cements) the mass leaves the wet sand stage and becomes a dead-pack which can be tested by making a groove with the spatula across the body of the mix. If the groove remains open, it is time to use.

9. If the groove closes up and the lips coalesce, add more reserve powder. Be sure there are no powdery particles on the mass.

10. The mix should be fairly heavy and it should be placed in the cavity quickly, in one lump.

11. Always pack from one large piece into the corners of the cavity.

12. Do not add little pieces. Complete before the stringy stages arrives.

13. A way to keep the dropper clean when not in use is to hang it, glass part down, in a glass vial or test tube set on a base.

Insertion of the Mix

1. Before the insertion of the mix, it is important (1) to cleanse and sterilize the cavity, and (2) to line moderately deep cavities with a monomer insoluble liner, being sure that none of it gets on the margins.

2. The margins should be freshened to ensure freedom from liner.

3. Extremely deep cavities should be lined with oxyphosphate of zinc cement. This precaution is not taken because of irritating properties of the material. Eleven years ago the author inserted direct acrylics of crude denture type into near pulp exposures in his own teeth and had no irritation of the pulp. Recent tests on vital teeth, using the latest direct acrylic resins, showed no irritation (A) clinically, or (B) histologically. Neither is the precaution taken because of possible heat of polymerization as the heat is less than the tolerance point of 130° Fahrenheit of the dental pulp.

The Use of a Liner—The cement or the liner is used in deeper cavities because of the possibility of irritation from the pressure of the matrix. When a strip is held tightly against a tooth, there are three to four thousand pounds of pressure per square inch. In relation to the area involved, this amount of pressure represents great force. Zinc oxide and eugenol are contraindicated as a base because eugenol attacks the acrylic. Cavity varnishes, liners of the accepted type for silicates, are not satisfactory because monomer penetrates them upon contact.

Method—1. The mass of the restoration material is inserted in one large piece and worked, as previously described, into all parts of the cavity until the cavity is filled to excess.

2. The matrix is applied with steady force and is held immobile for three to five minutes. Five minutes are preferred in case the mix was too thin, or the room temperature cool. The strip is held for three to five minutes after placement is completed and not from the beginning of the mix. If the time is estimated from the beginning of the mix, an extra two minutes should be added to the required three to five minutes.

3. Regardless of the type of cavity or the matrix used, there should be no cutting or irritation of the gingiva which may produce discomfort or bleeding.

4. The matrix, strip, band, tube, compound, or whatever is used to maintain form and pressure should be held (1) firmly, (2) without movement, (3) without tampering with the excess, (4) without testing for hardness in order to cheat on the time, and (5) without making corrections in the contour of the mass.

5. Some operators use a blast of hot air from the hot air syringe against the restoration to hasten setting. This measure would be helpful except for the danger of evaporation of the liquid from the hardening material. A more satisfactory procedure is to rest a hot edge of the examination light bulb or a hot spatula against the restoration. It is not advisable, however, to tamper with the set at all.

Comments—1. Haste or carelessness will result in (1) pulled margins, (2) loose restorations, or (3) poor restorations.

2. The matrix should be carefully adapted against the tooth (1) to prevent gross aprons, (2) to give proper shape, and (3) to retain as much as possible the finished lustre that results when the acrylic is processed against a resinous surface or smooth metal.

3. A well-adapted and properly held matrix also prevents evaporation of some of the volatile monomer.

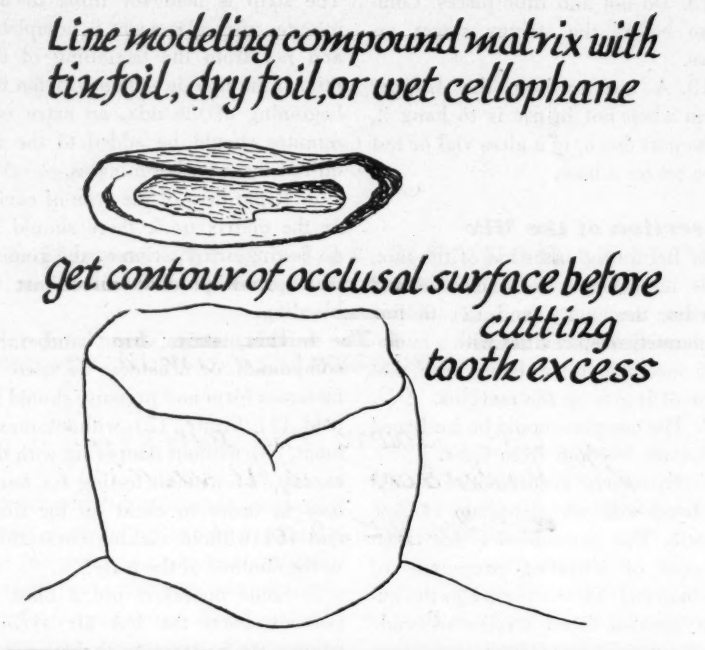
Cavity Preparation and Armamentarium

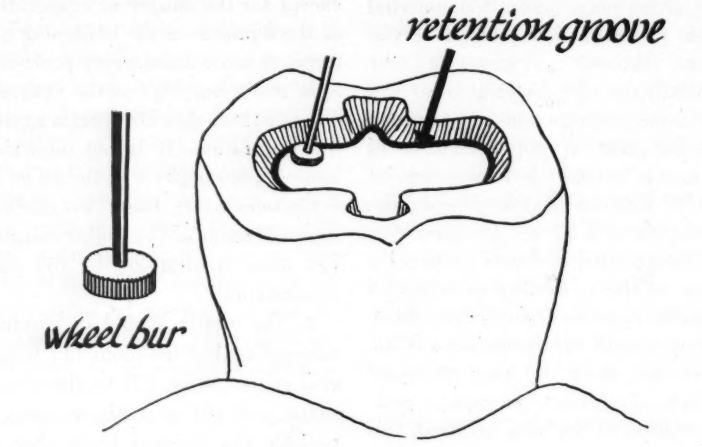
Procedure for Class I Preparations—1. Prepare as for amalgam restorations.

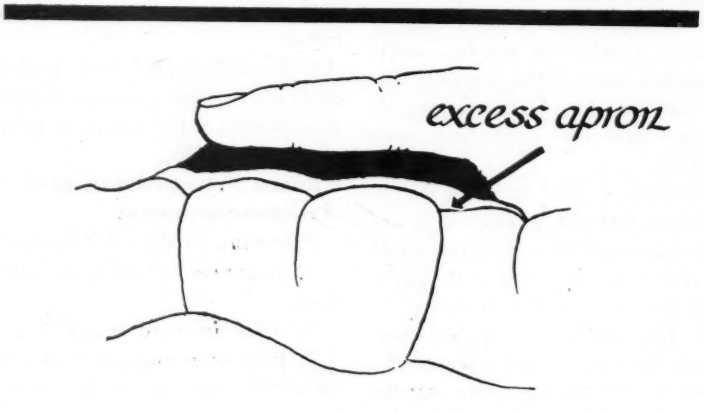
2. Allow for bulk of material.

3. Have large rounded base angles to avoid trapping air in retention areas.

4. Use round or wheel burs (the


Line modeling compound matrix with tinfoil, dry foil, or wet cellophane
Get contour of occlusal surface before cutting tooth excess





CLASS I

latter are preferred) at the base to secure retention.

5. Before cavity preparation, make a matrix of compound of the occlusal area.

6. If any compound protrudes into the cavity, cut it away.

7. Moisten the compound on the cavity side, and adapt a dryfoil to it, burnishing it smoothly.

8. The sticky side of the foil will adhere to the matrix, and will produce a perfect contour in the restoration.

9. If the matrix is to be held by the patient's opposing teeth, a metal backing of heavy lead relief metal may be used. It is advisable, however, to hold the matrix under firm finger pressure.

10. If extensive caries and tooth loss is present, carve a wax (hard inlay) restoration prior to the compound matrix preparation. Carve and adjust to bite.

11. Take an impression, remove wax, and prepare cavity.

12. If the cavity has undermined enamel, unsupported and feathery, cut it away and prepare square cavosurface margins.

13. After sterilization and cavity lining, freshen the margins and restore as previously described.

14. Do not test for occlusion, and do not finish until fifteen minutes after the time of the initial three to five-minute setting period. Have the patient sit in the reception room.

15. In finishing, use diamond stones, water cooled, and felt wheels with tin oxide, moistened with water. Always use low speeds.

16. A special resin polishing mixture may be used for a smooth final surface. Do not leave feather edge overextensions at margins.

Procedure for Class II Preparations

The esthetics may call for a restoration other than gold or amalgam. In the past it has been necessary to compromise with silicate cements of various types, sacrificing some of the strength in order to obtain color harmony. Direct acrylic resin answers the purpose much better than the silicate.

Factors to be Observed—(1) Box-like cavity preparations with square walls, (2) ample bulk in retention, (3) avoidance of shallow narrow isthmuses and dovetails must be observed.

There must be (1) no slice preparations, (2) no feather edges, (3) no bevels, and (4) no unsupported enamel. Retention grooves along proximal walls, and along the pulpal seat, and a dovetail occlusally add greatly to the safety of the restoration.

Method—1. Adapt a matrix band around the tooth, and trim until it clears occlusion.

2. Place it in an ivory matrix retainer, Number 8 or 9. The wedge type, such as Number 4, is not entirely safe, as it may shift under pressure.

3. Place a piece of stimudent toothpick at the gingival margin to adapt the band snugly against the tooth. Moisten it with a drop of water. This expands the wedge and gives extra tightness.

4. Contour the band with the burnisher to provide proper contour against the adjacent tooth.

5. After carving a wax restoration out of hard inlay wax, make a compound and foil matrix over the occlusal. Colorless wax is preferred.

6. Try occlusion.

7. Remove after the impression. Sterilize, line, and freshen margins.

8. Restore.

9. Reseat the compound matrix or plunger over the acrylic mass and press firmly, without movement, for five minutes.

10. Remove the compound and retainer matrixes, and do not finish the case until at least fifteen minutes have elapsed.

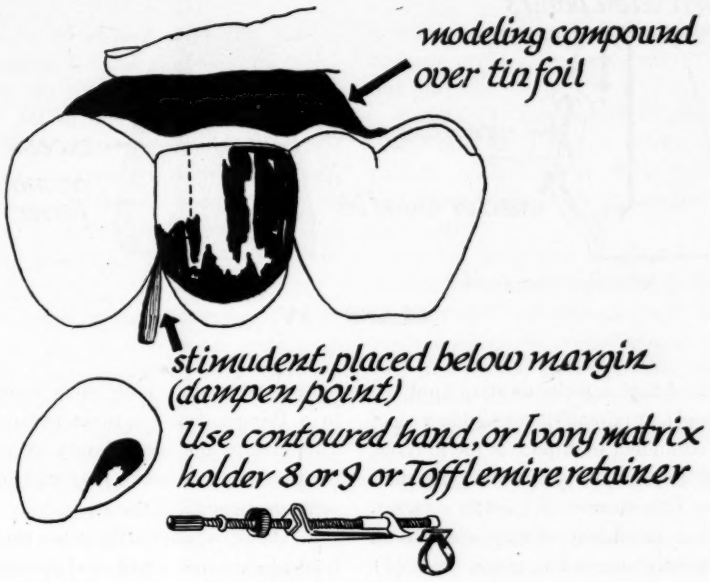
11. Finish with diamond stones and felt wheels occlusally, as described before.

12. Use diamond stones and discs buccally and lingually or palatally, always under water at slow speeds. Use light pressure. If the instruments clog, run them through an ink erasor, then brush with a stiff brush and water.

13. Gingivally, use Evans root trimmers, small size, in a straight handpiece or in a contra-angle. These root trimmers are spiral and trim the excess under the tissue satisfactorily. A diamond strip may likewise be useful but it should not be run through the contact point.

14. Polish with felt wheels and resin polish or tin oxide.

15. A contoured copper band may be used instead of the above technique. The procedure is the same as above, once the band is properly festooned and fitted on the tooth.

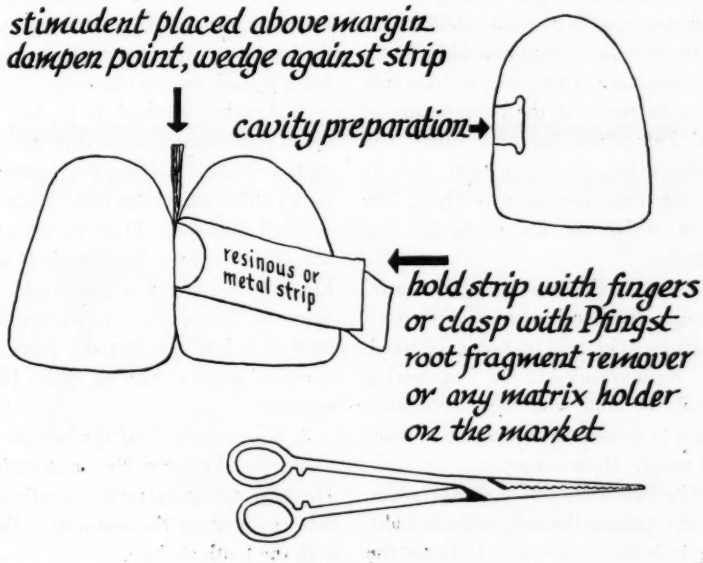

modeling compound over tin foil
stimudent, placed below margin (dampen point)
Use contoured band, or Ivory matrix holder 8 or 9 or Tofflemire retainer

CLASS II

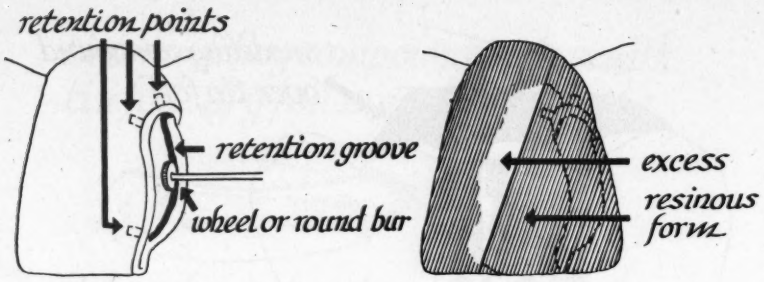
Procedure for Class III Preparations

In preparing Class III cavities, follow the same procedure as for silicates, except that a more pronounced retention is produced by round or wheel burs.

1. Have ample access to the cavity.


stimudent placed above margin dampen point, wedge against strip
cavity preparation
resinous or metal strip
hold strip with fingers or clasp with Pfingst root fragment remover or any matrix holder on the market

CLASS III



CLASS IV

2. Adapt a resinous strip (not celluloid) proximally, and wedge a piece of stimudent toothpick at the gingiva, just beyond the gingival cavity margin. This ensures (1) better contour, (2) a minimum of excess apron in a poorly accessible place, and (3) freedom from irritation of the soft tissues.

3. Be sure that the wedge is cervical to the margin. Placing it incisively to the gingival margin will produce a concavity in the restoration, and a food trap. Put a drop of water on the stimudent. This will cause it to expand and tighten the fit of the strip against the tooth.

4. Pack the cavity to excess.

5. Bring the other end of the resinous strip around the tooth and secure it in a circular matrix holder (Ivory Number 8 or Number 9) and tighten.

6. Immediately cut off the gross excess apron with a sharp scalpel. This must be done rapidly, before the doughy stage is reached, and the mix must be made at the temperature of 65° Fahrenheit for only thirty seconds, otherwise there will not be enough time for the procedure. The band is left on the tooth for five minutes.

7. Until the operator is rapid enough for the above procedure, a resinous strip, held immobile by hand, is recommended. No tampering should be done with the excess, as it tends to loosen the filling, or to draw the acrylic from a margin.

Alternate Method—Another method of retaining the strip without holding it is the following: 1. Draw the other half of the strip around the tooth and clamp both ends tightly in a Pfingst root fragment remover. This clamps the strip tightly around the tooth in a vise-like grip and prevents movements of the strip.

2. If the resinous strip is too thick, it may be warmed a trifle and stretched sufficiently to pass the contact point. A thin strip will have a tendency to become concave with pressure which will produce a defective restoration.

3. For a good contact point, use former separation, or a mechanical separator as would be used for a silicate restoration. The separator may be left on while restoring the cavity. This may be necessary in cases where removal of the separator, after adapting the strip, may cause a hemorrhage, as in inflamed gingivae.

Prepare One Restoration at a Time—1. If a proximal resin is already in place, protect it from crazing by the resinous strip for the new acrylic restoration. In pulling the strip over the new restoration, keep the material from getting on the old one.

2. Another method is to foil the older restoration with a thin tin foil, such as dryfoil, placing the moistened sticky side against the restoration.

Final Steps—1. Trim excess after the fifteen-minute rest period with Evans spiral cut root trimmers or a Number 701 cross cut fissure bur used at a low speed, away from the margin, as in finishing gold inlay margins.

2. Keep one-half of the bur on the tooth, one-half on the restoration. This prevents gouging the acrylic and helps to contour the restoration flush with the tooth surface.

3. Use clean discs and stones, preferably diamond stones, cooled under water, to complete the trimming.

4. Polish with tin oxide and water on felt wheels, or a special resin polish and felt wheels.

5. Do not leave aprons of excess material until the next visit as the patient may damage the restoration in the interim.

6. If resin strips are not available, paint the strip on both sides with the cavity liner that comes with the kit.

7. Dry with a blast of warm air. Repeat. This will place a layer over the celluloid that will keep acrylic from sticking to it.

8. In the past the author used a 2 per cent solution of stearin or stearic acid in carbon tetrachloride to achieve the same result. For consistently better results, resin strips, or extremely thin stainless steel strips are recommended.

Restoring Large Surface Cavities—1. Where a large part of the labial or lingual surface is to be restored, the discrepancy in the enamel may be filled with hard inlay wax and a compound matrix prepared.

2. This is covered with dryfoil as previously described and in conjunction with the resinous strip is used as a matrix when restoring the cavity. This eliminates extra work later and allows for an easy replica of the patient's normal contour of the incisor.

Procedure for Class IV Preparations

To restore incisal corners a cavity preparation combining the following features should be followed:

1. It should allow ample bulk.

2. It should not have narrow isthmuses or shallow and narrow dovetails.

Method—1. Allow for plenty of retention with round burs or wheel burs.

2. Use retention grooves along all possible walls in the dentine.

3. Do not undermine unsupported enamel.

4. Sink round retention points at the incisal and the gingival seats.

5. If excessive stresses are antici-

pated and a great deal of the tooth is missing, use a U-shaped iridioplatinum pin, such as that used in pinlays.

6. Cement it into the preparation. Gently warm the pin and paint it with an acrylic opaque. This is prepared by dissolving clear acrylic in chloroform. To this add titanium dioxide, and paint over the warm metal. Chloroform evaporates, leaving an opaque lining.

7. Trim a resinous form that will give the desired contour to the damaged tooth. The operator may have to slit the opposite side of the form to get it over a bell-shaped tooth, or trim enough to allow for a rapid and accurate tight seating of the form.

8. Do not overextend at the gingiva, and have a wedge ready to ensure a proper adaptation.

Final Steps—1. Mix acrylic at 65° Fahrenheit. Fill the form's incisal corner and quickly pack the rest into the cavity.

2. Plunge the form into place until properly seated. Two minutes are allowed for this which should be sufficient time.

3. When seated, wedge the form at the gingival margin with a stimudent directed gingivally to the cavity cervical margin. Moisten the wedge with a drop of water. This is done while the form is held immobile. All the implements must, therefore, be within easy reach.

Completion of the Restoration—1. After five minutes, let the patient sit in the reception room for at least fifteen minutes. Keep the form in position.

2. After the rest period has expired, slip off the form and finish the restoration as previously described. Tell the patient that it takes a day for the acrylic restoration to develop its complete and natural translucency, comparable to human enamel.

Preparations for Class V Restorations

Class V preparations are prepared as for a silicate but allowance is made for a little more bulk.

1. Prepare a continuous retention groove all around the cavity with a wheel or a round bur.

2. Do not have a flat pulpal wall, but follow the contour of the tooth.

3. Prior to cutting, a compound impression matrix of the tooth surface may be taken.

4. If the cavity is large, fill with hard inlay wax prior to the impression.

5. If it is shallow, scoop out the bulge on the compound impression where the compound entered the cavity. This impression can be taken either in compound only, or for best effects, backed by several of the excellent matrixes.

A Matrix Holder—A useful and effective matrix holder is a cheap pen point (1) with the point clipped off, and (2) the metal annealed so as to be easily adapted against the cervical and labial contour of the tooth.

An assortment of pens in various sizes may be procured in a stationery store. They are trimmed and annealed by heating to a cherry red and allowed to cool to remove the temper. Spencer pen points are excellent for this purpose.

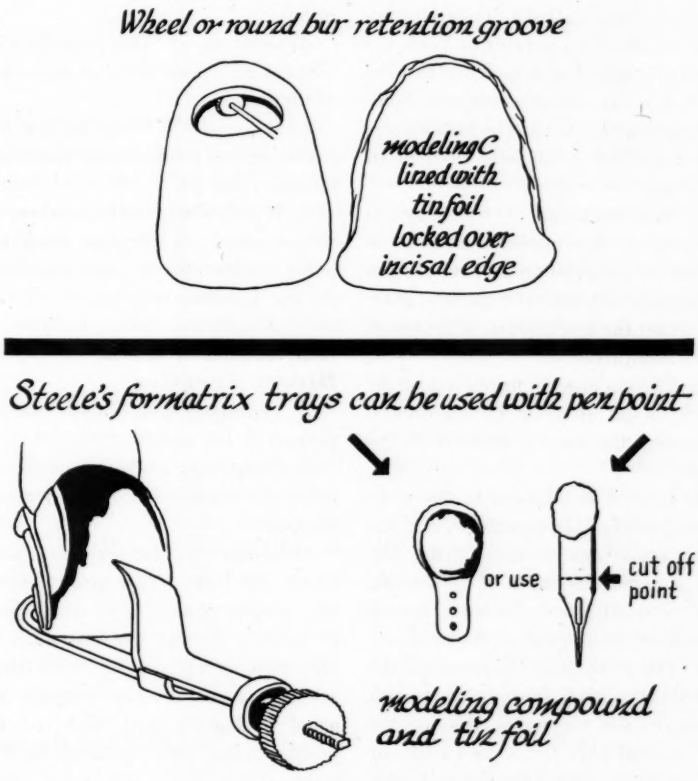
Method—1. Compound is placed inside this metal matrix holder and pressed against the tooth so that it fits beyond the cervical margin of the cavity.

2. The compound is chilled, the matrix is taken off, lined with dryfoil, as previously described, and laid aside. Hydrophilic cellophane, or regular thin tin foil used in foiling cases in denture construction may also be used but the dryfoil is more satisfactory.

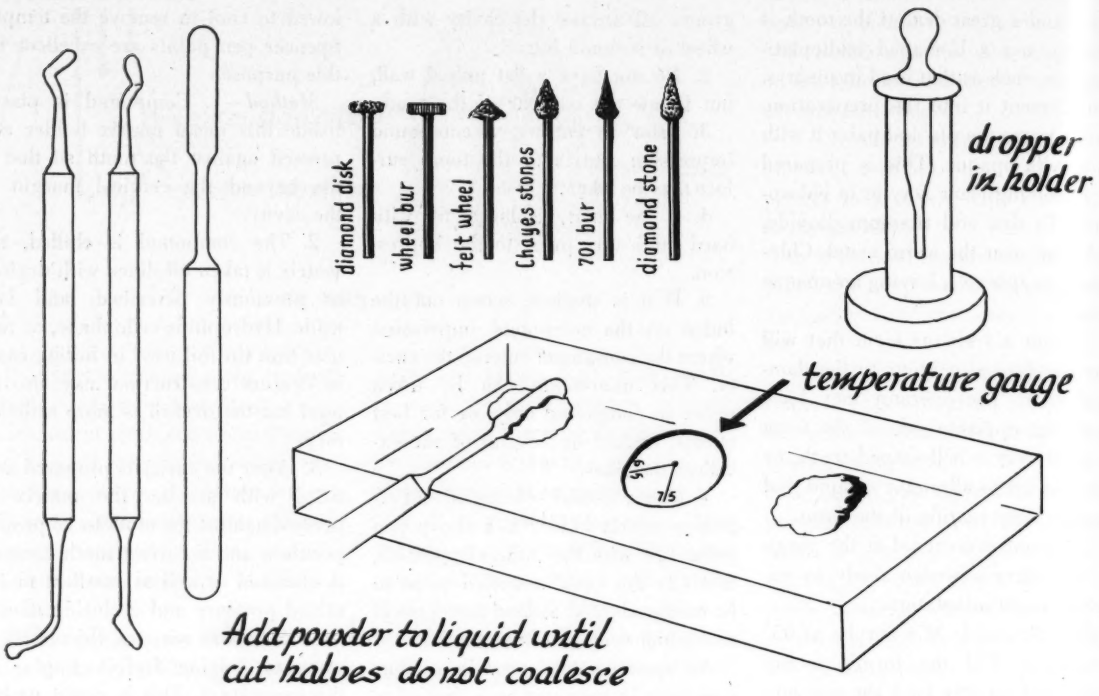
3. After the cavity is prepared and filled with acrylic, the matrix is pressed against the tooth to its proper position, and a correct tooth contour is obtained as well as excellent maintained pressure and exclusion of air.

4. After five minutes, the matrix is removed, leaving dryfoil clinging to the restoration. This is easily peeled off.

5. After the usual wait, the restora-


Wheel or round bur retention groove
modeling C lined with tinfoil locked over incisal edge
Steele's formatrix trays can be used with pen point
or use
cut off point
modeling compound and tin foil

CLASS V



tion is finished as previously described.

A Matrix System—An excellent matrix system, called a Steele's formatrix, enables the operator to insert the acrylic gingival and to leave the patient for five minutes without holding the matrix. It has the metal backing described in various sizes to fit the case.

1. The backing, or the tray, is adapted to the tooth, compound is added to the preshaped tray, and an impression is taken with the tray passing under the free margin of the tissue without injuring it.

2. The embossed impression of the cavity is cut off from the compound to restore the natural contour of the tooth.

3. Dryfoil is adapted to the compound, sticky side against it, and the smooth side against the acrylic. The foil is burnished until it is smooth.

4. A small piece of carding wax is placed on the lingual of the tooth.

5. The restoration is inserted, the matrix is placed into position with pressure, the tongue portion of the tray is bent over the incisal edge, or the occlusal, onto the lingual side overlapping the carding wax.

6. The clamp is now adjusted into position and tightened.

7. The matrix is left alone for five minutes.

Advantages—1. This procedure eliminates any possibility of movement of the matrix.

2. It avoids bleeding of the soft tissue, due to irritation or instrumentation.

3. It provides steady pressure, exclusion of air, or seepage, eliminates bulky excess aprons, and saves time for the operator.

Additional Uses of Direct Acrylics

1. Veneering gold inlays already present in the mouth.

2. Repairing broken acrylic or porcelain veneers in cast gold veneer crowns.

3. Repair of old acrylic restorations: (1) inlays, (2) jacket crowns, (3) acrylic pontics, (4) worn down or broken acrylic denture teeth or bite raising appliances, (5) direct acrylic jacket crowns without the usual curing by heat, and (6) the postdamming and repairing of dentures.

The limitations of acrylic restorations and other applications of self-curing resins are accounted for by the fact that nothing used in dentistry is perfect. After many years of experience, limitations still exist in amalgam, silicate, baked porcelain, and gold techniques. Controversy always arises with the advent of new products and techniques. In the short time since the technique described was introduced to the profession, great progress has been made. The material available today will be better in the future because of its enormous possibilities. There are several excellent direct restoration kits on the market, but there are also many that are without value. It is hoped that a set of standards devised by the Bureau of Standards will eliminate the worthless.

Indications for Direct Acrylic Resin

Direct acrylic resin is suitable wherever silicate is indicated and for the following:

1. Incisal corners.

2. Occlusals.

3. Class II restorations, such as MO on the upper first and lower first bicuspids where esthetics are import-

ant and the silicate cements now in use are unsatisfactory.

4. Children's dentistry in all types of cavities.

5. It is excellent for mouth breathers because acrylic in its cured state is not affected by air, as there is no water in its formula.

Acrylic restorations are easily repaired or added to. The old restoration should be slightly moistened with a little monomer liquid, the new mass added, and a union of the old and the new restoration will be effected.

Advantageous Characteristics

1. The material is compatible to the pulp, as recent tests on vital teeth have proved.

2. It hardens within the same time range as other restoration materials available.

3. The color is natural and compares favorably with the human enamel, more favorably than silicate.

4. It has wide color possibilities because of its unimpigmented state and is transparent to 92° light.

5. It retains its color and is unaffected by (1) salivary fluids, (2) lipstick, (3) tobacco, and (4) foods.

6. It is easily kept clean because it retains its lustre and polish.

7. It is odorless and tasteless and shows no fungus or bacterial growth, no signs of deterioration, and its solubility in saliva is negligible compared to silicate.

8. It is a poor conductor of thermal changes and is noninjurious to mucous membranes.

9. If properly inserted, it permits no marginal seepage.

10. It has a slight compensatory water absorption that takes care of the slight shrinkage of plastics during polymerization.

11. It is not breakable under normal stress, it has normal resilience and wear.

12. With saliva as a buffer and lubricant, it stands up well under attrition and abrasion and it is excellent as a restoration under clasps.

The Effect of Polymerization on Dental Pulp

The heat of polymerization is much less than the tolerance of 130° Fahrenheit and is not felt at all by the patient. Eleven years ago the author inserted crude denture acrylic restorations in near pulp exposures in his own teeth without experiencing pain. Using the newest acrylic materials, the result has been the same.

Conclusions

Operators who have not used the direct acrylics are advised to try the simpler restorations first, and to follow with more difficult ones. The technique is interesting and the material has vast possibilities. It is the responsibility of dentists to experiment for the benefit of themselves and their patients.

49th *and Locust Streets.*

Nailbiting

ANTHONY MALONE, D.D.S., Chicago

A Common Habit

Most school children bite their nails, and the habit may become a problem when it is so persistent that it results in the destruction of the free margin of the fingernail, leaving tags of soft tissue which may suffer from repeated attacks of paronychia. Where the act is of long duration, the following conditions may occur: (1) Callosities of the fingers, (2) deformities of the nails, (3) herpes of the mouth, or (4) gingivitis.

A Symptom of Internal Tension—The physical effects, however, are not as damaging as the emotional conflicts from which the habit may arise and to which it may lead. Nailbiting is a symptom of some internal tension, and since it is not socially acceptable to parents and teachers, it may then lead to other emotional conflicts.

Duration of the Habit—1. Numerous investigators agree that nailbiting begins after the third year. 2. The percentage increases sharply between the third and seventh year. 3. The habit remains fairly constant until just before puberty when it reaches its peak. 4. After puberty it drops sharply after the fifteenth year.

Cause of Nailbiting

It has been suggested that nailbiting is a transfer from a frustrated or condemned thumbsucking habit. This hypothesis helps to explain the great prevalence of nailbiting in children over five years, and it has been noted that infants who did not suck their thumbs rarely bite their nails; vigorous thumbsuckers became vigorous nailbiters.

Substitute Habits

As the child grows older, social censure demands that nailbiting be discontinued and the average child substitutes another "habit." These may range from pencil biting or gum chewing, to lip biting, nail picking, or nose picking. In the adult, smoking is a common nailbiting substitute. Persistent nailbiting after sixteen years may indicate (A) emotional and social immaturity, or (B) regression.

Conclusions

Nailbiting may be considered as a "nervous habit." Situations which build up inner tensions in the child may be reflected in nailbiting. Poor parent-child relationships are the basis for many behavior problems, and youngsters who feel rejected often find solace in their fingers. Over protection or sibling jealousy may influence the severity of the biting.

From *Your Child Patient, Publication of the Illinois Unit of the American Society of Dentistry for Children.*

Replacement for Anterior Teeth

by an IMMEDIATE ACRYLIC BRIDGE

MURRAY N. RUBINSTEIN, D.D.S., New York

DIGEST

The use of immediate dentures for the replacement of teeth has been employed successfully for many years and has proved to be a satisfactory procedure. However, when applied in small anterior spans the immediate denture is not always desirable.

In replacing one or two teeth immediate dentures are often a detriment rather than a benefit for the following reasons: 1. A lack of esthetic qualities. 2. If permitted to stay in place for any length of time injury to the soft tissues about the remaining teeth may occur.

The author of this article has evolved a desirable procedure for immediate replacement with the use of acrylics. The following technique has been approved by patients and is adapted to a situation where jacket crown abutments can be employed for the permanent replacements. A case in which a six-piece splint was prescribed for the purpose of retaining a partial upper precision denture is described.

Technique

Figure 1A—Preoperative photograph of the patient.

Figure 1B—1. At the first visit, secure complete x-rays and accurate study models.

2. Accurate impressions in any material may also be made at this time.

3. A bite registration is taken and working casts are mounted on an articulator.

4. Shade and tooth markings should be noted.

Figure 2—If any teeth are missing make a temporary wax-up of such teeth on a master model.

2. Make a core of the buccal surfaces to facilitate actual reproduction of the natural teeth.

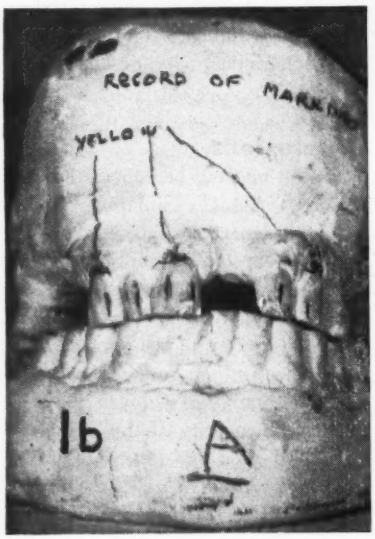
Figure 3—1. The abutment teeth are prepared *on the model* for ideal jacket crown preparations.

2. It is preferable to remove a minimum of tooth structure on the model. The ideal method is to remove a little less of the model teeth than the anticipated preparation in the mouth. This will facilitate seating of the immediate acrylic bridge.

3. Be sure to prepare shoulders at correct gingival level, according to accepted standards.

Figure 4—1. Cut off teeth on the model to be extracted.

2. Lubricate the model and wax up



crowns, using core previously obtained as shown in Figure 2.

3. If bite is strong, a metal reinforcement may be introduced into wax-up.

Figure 5A—Remove wax-up, flask, and process.

Figure 5B—Fit cured bridge to prepared model and polish.

Figure 6—1. At the second visit of the patient, preparations of abutments are made. Usually, the actual preparation will be in excess of that made on the working model. It is this difference that will readily permit the insertion of the previously prepared bridge when the preparation is complete.

2. Extraction of the indicated tooth, or teeth, is now done.

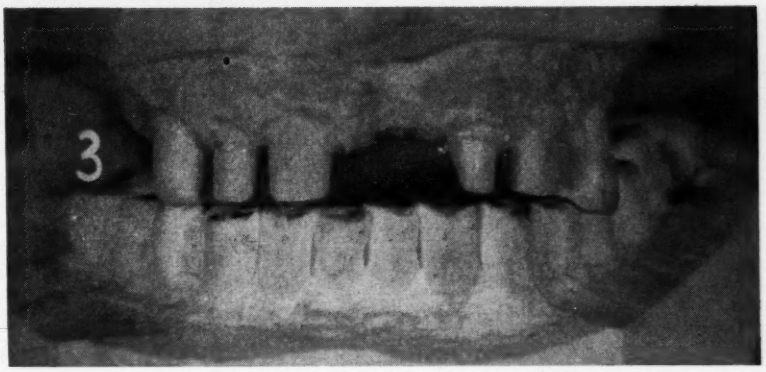
Figure 7—1. It is relatively simple to adapt the prepared bridge.

2. If necessary, some of the interior of the acrylic bridge may be removed to facilitate its seating.

3. Judicious grinding of the preparation is permissible if the original model preparations prevent extensive grinding correction.

4. Check the occlusion to be sure teeth will not be traumatized.

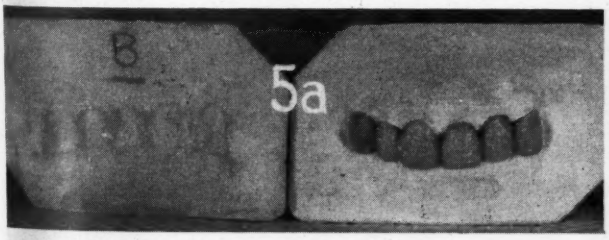
The Final Step—After satisfactory adaptation, cementation with a thin mixture of zinc oxide-eugenol cement, is the final step. When healing of the tissue is complete, a permanent porcelain bridge preparation will be made. The immediate bridge will be employed until the permanent case is finished.

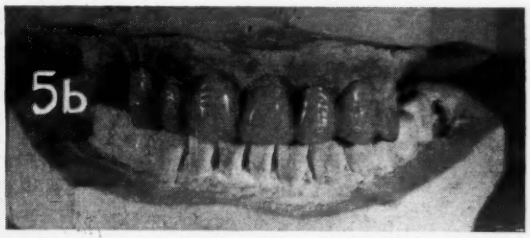


Conclusion

The technique described is used by the author routinely in all cases where splints are indicated for the retention of precision attachments. The immediate splint is insurance against possible drifting of prepared teeth during treatment. In addition, the patient is comfortable during treatment.

200 *Central Park South.*





PAPILLOMA *from Denture Trauma*

FLOYD E. STRAITH, D.D.S., Detroit

DIGEST

The labial or buccal flange of artificial dentures is often the causative factor in the creation of hyperplastic folds of tissue, which frequently assume large proportions and may grossly resemble malignant neoplasms.

While malignant tumors of the oral tissues often do arise from similar causes, their metaplastic changes to malignant tumor tissue seldom arise in these large masses of hyperplastic tissue. The change usually begins before there has been much gross enlargement. That such malignant changes do not occur early in the formation of these large hyperplastic folds and growths is remarkable, inasmuch as the denture continues to create trauma from its constant use.

The following case report is illustrative of the size to which the growths described may attain.

Case Report

A fifty-four-year-old Negro man was referred for treatment of a growth in his mouth. The patient was a rather small man, but well developed for his height.

Past History—1. The patient had had no illness in recent years and had no history of operations.

2. He had been wearing full upper and lower dentures for twelve years.

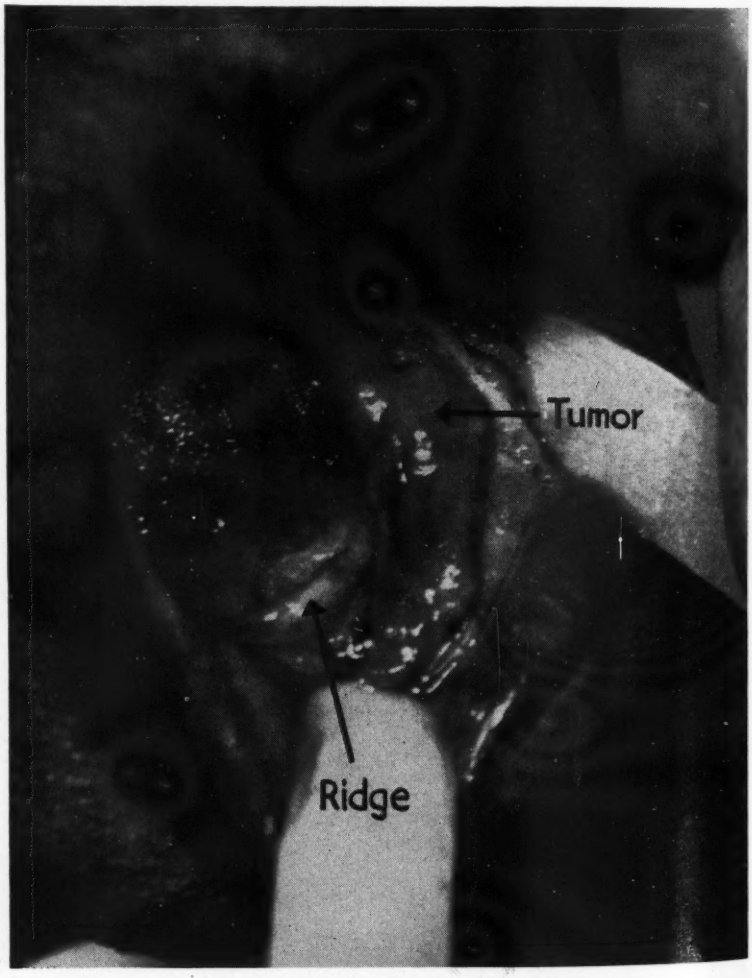
3. Some soreness had been noticed from his lower denture on the left side for six or seven years.

4. Two years previously the patient had noticed some growth of tissue at the buccal of the lower left. This had slowly increased in size until he had been unable to wear his denture for several weeks.

Examination—The following conditions were revealed by examination of the mouth: 1. Considerable resorption of the alveolar ridge on the lower.

2. The tissues were normal except for an elongated, slightly lobulated mass of tissue at the labial and buccal of the lower ridge at the left (Fig. 1).

3. The mass extended from the midline to the lower left second molar area, and increased in size toward the posterior part of the mouth.



1. ***Fibroma from denture irritation.***

2. ***Tumor removed.***

4. The mass measured about 1.5 centimeters in greatest diameter, and 5 centimeters in length, and was attached to the tissues in the buccal fold by a broad pedicle.

5. It was slightly lobulated and at points there were folds in the covering mucosa.

6. The surface tissues were smooth and normal in color.

7. The regional lymphatics were slightly enlarged, but not fixed.

Diagnosis—The clinical diagnosis was fibroma.

Operation

1. The anesthetic was procaine 2 per cent.

2. The mass was excised.

3. The cut edges of the surrounding mucosa were undermined, approximated, and sutured (Fig. 2).

Pathologic Report—Irritation papilloma with infection was revealed by microscopic study.

Treatment and Course—1. Three weeks after surgery the sutures were removed.

2. Examinations at intervals during the following year revealed excellent healing and no recurrence.

3. Four years after surgery the patient reported no further trouble.

Comment

While pathologists often diagnose such growths as a papilloma, or, as in the case described, as an irritation papilloma, there is usually little or no papillomatous change in the mucous membrane. The hyperplasia is mostly confined to the underlying connective tissues. These growths resemble the keloid as they are an overgrowth of tissue in an attempt to repair.

1713 *David Whitney Building.*

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CORRECTION

The last paragraph of the editorial on page 172 in the April issue, which through a printer's error was incompletely presented, should read as follows: "A further hazard springs from the superimposition of an infection with oral staphylococci and streptococci upon the eczematoid dermatitis."

Acute PARAMYELOBLASTIC LEUKEMIA*

PETER ADLER, M.D., and ANDREW BAN, M.D., Debrecen, Hungary

DIGEST

The dental surgeon occasionally has an opportunity of observing and detecting the initial stages of blood disorders which manifest themselves in ulcerative and necrotic changes of the gingival tissue. This is a report of a patient with unusual oral symptoms which had their origin in a rare type of acute leukemia.

Case Report

A man of twenty-two years was referred to the Stomatological Clinic because of swelling and soreness of the gingival tissue.

History—1. The family history is without particular interest. 2. The patient had fully recovered from the following diseases: (1) operated inguinal hernia, (2) scurvy and starvation edema in a prisoner of war camp from which he had returned a few months previously.

Symptoms—1. Onset of the present illness was approximately two or three weeks previously with soreness of the upper gum.

2. A few days later the patient's face became swollen. He then consulted a physician and was given penicillin injections. The swelling gradually subsided and his condition improved considerably.

3. Four days before admission to the Stomatological Clinic the patient noted (1) a fetid odor in the mouth, (2) intolerable pain in the gingival tissue, and (3) he experienced chills. He consulted a dentist and was referred to the Stomatological Clinic.

4. The patient stated that the present gingival symptoms differed radically from the former scurvy.

Present Status—1. The gingivae were maximally hypertrophic, entirely covering the anatomic crowns of all the teeth.

2. The gingival margin was blunt (Fig. 1) and the color of the gingival tissue was dark reddish blue.

3. The swelling extended along both complete rows of teeth, labially and orally.

4. In the left lower posterior region the swollen gingival margin was ulcerated and there was a purulent discharge from the deep pockets.

5. There were no sign of a hemorrhage (1) in the oral cavity, (2) in the visible mucous membranes, or (3) in the skin.

Examination—1. Although well developed and well nourished, the patient appeared to be a severely ill man with a slightly yellowish, pallid color.

2. The lymph nodules and spleen were not enlarged and were, therefore, not palpable.

3. The tonsils were somewhat swollen.

4. At admission, the patient's temperature was 38.7° Centigrade (101.6° Fahrenheit).

Diagnostic Considerations

1. A combination of hypertrophic and ulcerative gingivitis is not usually encountered. Hypertrophic (hyperplastic) gingivitis is a distinctly chronic disease. For this reason the short duration of the gum hyperplasia in this patient was an apparent contradiction.

2. The hyperplastic gingivae offer great resistance to attempts at removal by any means whatever. Ulceronecrotic gingivitis does not occur in hyperplastic gingival tissue. The combination would be helpful to an extent as a means of self-healing by (1) removal of the proliferated gingival margins, and (2) elimination of unhygienic deep pockets.

3. In hyperplastic gingivitis there is a marked tissue proliferation. The young proliferating cells are extremely resistant to bacterial infection.

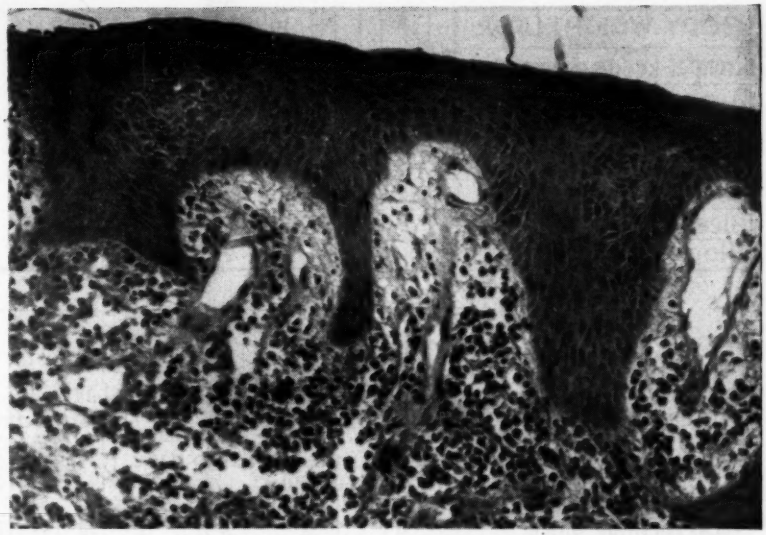
Systemic Disturbance Possible—For these reasons it was suspected that some systemic disturbance might exist. Blood counts revealed 3,400,000 erythrocytes and 26,000 leukocytes, 67 per cent hemoglobin. There was no conspicuous disturbance of the differential leukocyte count.

Tentative Diagnosis—(1) The fever, (2) the acute swelling of the

*Publication authorized by the Stomatological Clinic and by the Medical Clinic of the University.

1. ***Swelling and hyperplasia of the gingival tissue. The gingival margin is sausage-like and blunt.***

2. ***Biopsy specimen from the upper incisor region. No changes in the epithelium. Paramyeloblastic infiltration of the subepithelial tissue. (Specimen prepared and photographed by B. Kellner, M.D., Professor of Pathology, Director of the Pathologic Anatomical Institute.)***



gingival tissue, (3) the ulcerative gingivitis, and (4) the not extremely high leukocyte count seemed indicative of an acute infection and of a concomittant hyperfunctional reaction.

Therapy

1. Penicillin was administered parenterally, partly aqueous, partly oily solution, 1,280,000 O.U. within seven days.

2. Local washings and massage of the gingivae with a 10 per cent hydrogenhyperoxide solution were performed several times a day. Superoxol, a 30 per cent solution of hydrogen peroxide was considered inadvisable because it induces a distinct etching of the mucous membrane.

3. Arsenobenzol, 0.15 grams was given intravenously and arsenobenzol washings were applied locally.

4. The condition rapidly improved and the temperature decreased to subfebrility.

5. Oral ulcerations and pus discharge subsided.

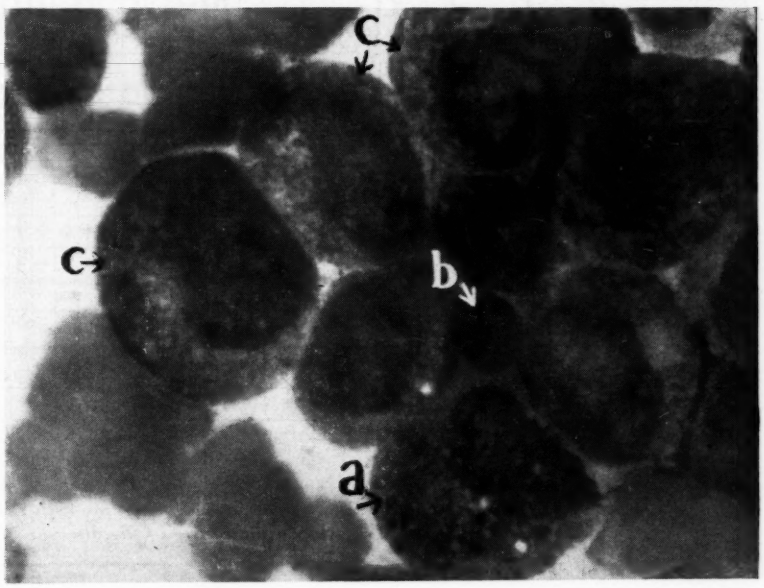
6. The hyperplasia of the gingivae remained unaltered.

7. On the fifth day after admission the leukocyte count was reduced to 8,400.

Further Examinations

Improvement was marked but the impression remained that a deeper systemic origin of the morbid condition existed. First of all, it was necessary to clarify the nature of the gingival hyperplasia. Tissue was taken from the upper incisor region for biopsy. This was to determine the nature of the blood disturbance. Bone marrow puncture was also performed.

Result of Biopsy—1. Bone marrow punctate, as well as the histologic examination of the specimen, revealed an acute paramyeloblastic leukemia (Figs. 2 and 3). 2. The hyperplasia of the gingivae was due to an infiltration of the subepithelial gingival layers with a tumor-like atypical cellular mass, consisting of paramyeloblasts.



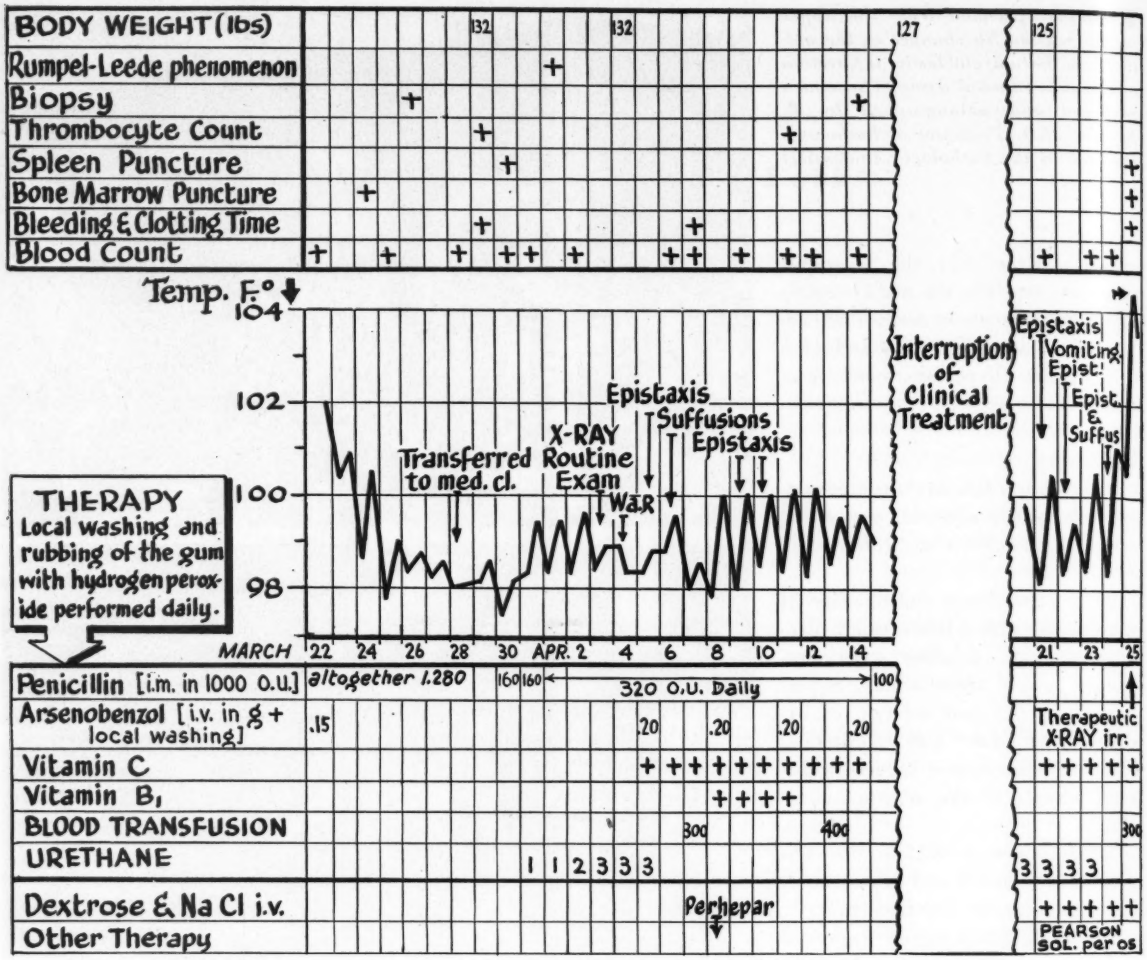
3. ***Bone marrow punctate. Signs: (a) Eosinophilic myelocyte; (b) lymphocyte; (c) promyelotic paramyeloblast. Oxydase reaction in the smear is positive.***

Final Diagnosis—As the assured diagnosis was *acute paramyeloblastic* leukemia it was considered advisable to continue treatment in the Medical Clinic. The patient was transferred to the Medical Clinic seven days after admission to the Stomatological Clinic.

Treatment Continued

After an interruption of a day and a half treatment was continued as follows: 1. Penicillin administration parenterally. 2. Additional dosage of vitamin C and B_1. 3. Intravenous and local applications of arsenobenzol. 4. Blood transfusions. 5. Urethane treatment was begun four days after the patient entered the Medical Clinic.

Report of Progress—The medicaments given and consecutive changes of temperature, blood counts, and diagnostic examinations are listed in



4. ***Temperature curve, diagnostic, and other examinations. Therapy, with remarks on the course of the disease.***

Figures 4 and 5. In Figure 6 the hemogram is shown.

The Effect of the Urethane Treatment—A constant decrease of leukocyte counts was effected by the urethane treatment although the percentage of paramyeloblastic elements did not change (Fig. 5). Two days after the patient was transferred, spleen puncture was performed. The results confirmed the diagnosis made (Fig. 7).

Improvement — Although not steady, clinical improvement occurred: 1. Swelling of the gingivae markedly receded although not to a normal condition.

2. The dark color of the gingival tissue disappeared. Apparently, the part of the swelling due to the passive hyperemia subsided.

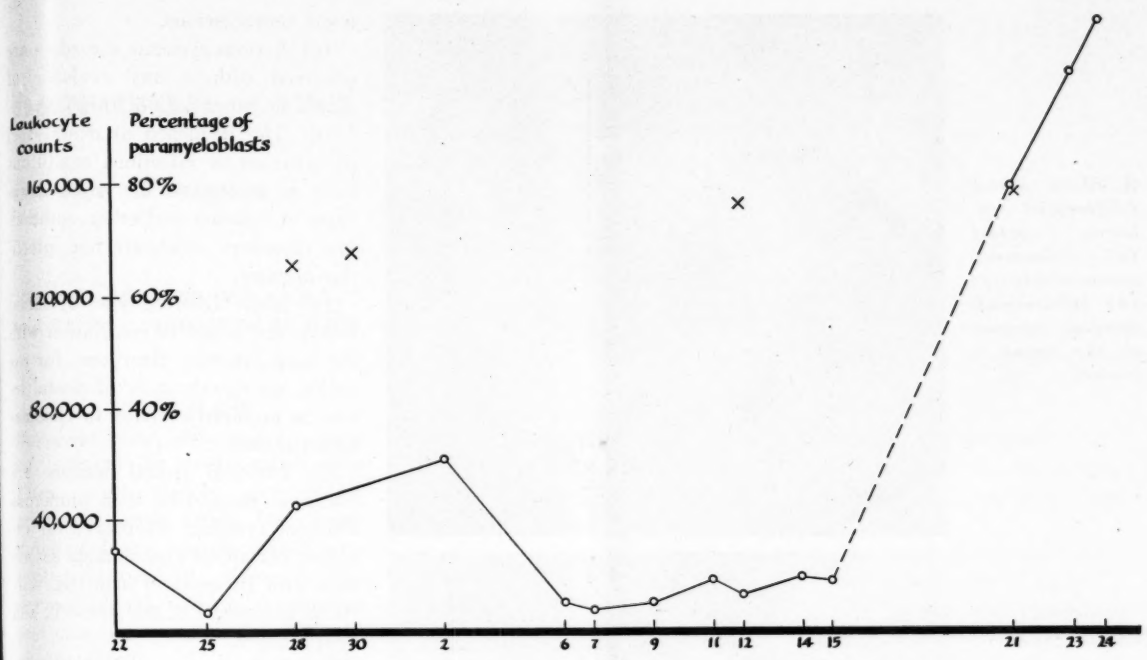
A Second Biopsy—Two weeks later a second biopsy was taken from the gingival tissue; in this specimen an unaltered infiltration of the gingiva by paramyeloblasts was observed.

Course of the Disease—1. The general condition did not display improvement comparable to that of the oral region. 2. A profound nasal bleeding occurred; this was corrected by cauterization. It is noted that four days previously the Rumpel-Leede phenomenon was negative. 3. Later, at the sites of the intramuscular injections, huge bloody suffusions were present and epistaxis recurred. Clotting and bleeding time were repeatedly ascertained without exhibiting gross disturbance.

Treatment Interrupted — Several days after entrance to the Medical Clinic, the patient interrupted clinical treatment to return home. He was afebrile three days.

Patient Readmitted—Having spent four days at home, the patient returned to the Medical Clinic. At this time the following conditions were present: 1. The spleen that had formerly not been palpable extended approximately to the umbilicus. 2. The lower margin of the liver was just palpable. 3. Several enlarged lymph nodules were noted. 4. The leukocyte count increased in six days from 24,800 to 160,000. 5. Urethane therapy was reinstituted but the leukocyte counts steadily increased. 6. Urethane caused severe gastric disturbances. After four days, x-ray therapy was, therefore, attempted. A few hours later, however, the patient died.

Post-mortem Examination — Bone



5. ***Changes in leukocyte counts. Percentage of paramyeloblasts in the peripheral blood remains virtually constant.***

marrow and spleen puncture fully confirmed the former findings.

Necropsy — Leukemic infiltration was revealed in all organs.

Comments

The cause of death was acute monocytoid paramyeloblastic leukemia. At present stage of medical knowledge this disease is incurable; death occurs in six to eight weeks. The history of the patient in this report follows the pattern.

Urethane Therapy—Without exerting any influence on the general systemic disease in acute leukemia, urethane therapy causes a drop of leukocyte counts. Life cannot be prolonged by urethane medication. The experience outlined in this report confirms this opinion.

Stomatologic Features—Several interesting features from the stomatologist's point of view are present in this report: 1. It is generally agreed that the therapy resistant forms of ulcerative gingivitis suggest the presence of derangements of systemic origin.

2. In this case the combined treatment with penicillin, arsenobenzol, vitamins, and hydrogenhyperoxide induced a marked improvement of the gingival condition that lasted *ad finem*, while the underlying systemic disease progressed rapidly and unalteredly.

3. Considering this fact, the importance of a *thorough hematologic examination of all patients suffering from ulcerative or necrotic gingival changes, without respect to effectiveness or ineffectiveness of dental therapy, should be stressed.*

Necrotic Gingivitis—1. The necrotic gingivitis in blood disorders is believed to be caused by an infection of the diseased gingival tissue by the bacterial flora of the "normal" oral cavity.

2. Apparently, this infection can be successfully treated by an adequate combination of local therapy with antibiotics.

3. This is further proof that ulceration of the gingivae is not due to the systemic disease itself, (leukemic infiltration) but is a superimposed infection of the gingival tissue.

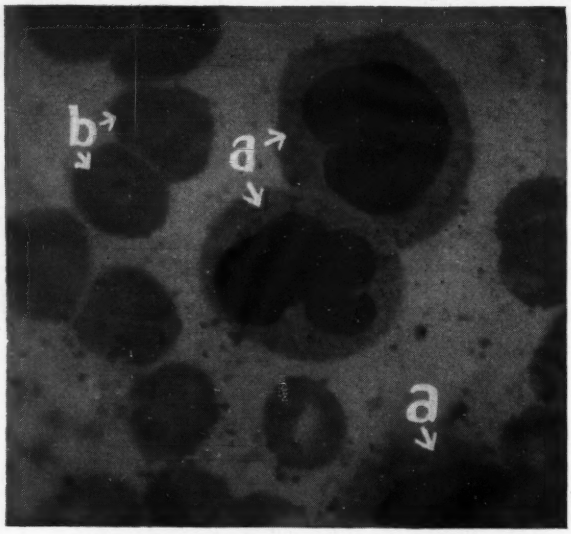
4. This fact is of importance because by proper medication the superimposed oral lesion can successfully be attacked, affording considerable alleviation to the unfortunate victims of the incurable disease.

5. It is obvious that in leukemia treatment of the gingival infection has no influence on the systemic disease.

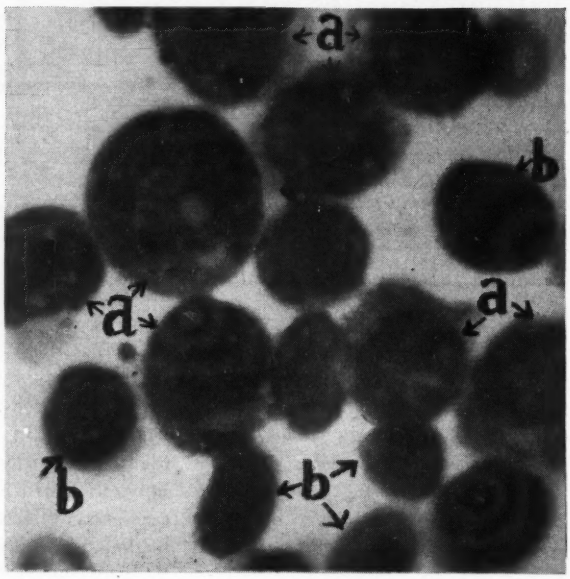
Comparison of Characteristics—1. In this case the penicillin and local therapy induced a drop of the high temperature. In acute leukemia the high fever is due (1) partly to disintegration of proteins, (2) partly to secondary infections. The latter infections are affected by penicillin. Even this successful result of therapy, however, does not postpone the lethal end.

2. In acute leukemia there are virtually no normal leukocytes, or no leukocytes capable of normal function. The fact that superimposed infection can be successfully treated by proper therapy despite the absence of sufficient, normally functioning leukocytes offers excellent prospects for the treatment of agranulocytotic conditions and infections of the oral cavity by penicillin.

3. From the point of view of the hematologist, one finding deserves special attention. In the spleen punctates mother forms of the monocytoid paramyeloblastic cells were found that were present in the peripheral



6. *Blood smear (differential leukocyte count.) (a) Monocytic paramyeloblasts; (b) erythrocytes. Oxydase reaction in the smear is positive.*



7. *Spleen punctate. (a) Paramyeloblasts; (b) lymphocytes. Oxydase reaction in the smear is positive.*

blood. This finding is indicative of the extramedullary origin of the paramyeloblasts in the circulating blood.

Summary

A lethal case of monocytoid paramyeloblastic acute leukemia has been described and discussed. The painful oral ulcerative processes were, despite the progress of leukemia, successfully treated with proper medication. Great alleviation was afforded the patient.

The Stomatological Clinic and the Medical Clinic of the University of Debrecen.

Oral Sepsis as a Source of Focal Irritation

I. STEIN, L.D.S., R.C.S., M.D.S., Johannesburg, South Africa

AN EXHAUSTIVE clinical analysis of the subject of focal infection as an important etiologic factor in systemic diseases warrants the following conclusions:

(a) Oral sepsis is found in association with numerous and various systemic disorders, and is not specifically related to any particular system or group of systems.

(b) Gross oral sepsis is found without any clinical evidence of systemic repercussions.

(c) Serious systemic disorders are observed without any evidence of dental or other foci of infection.

(d) The incidence of dental foci of infection in infectious conditions such as uveitis, is the same as in cases of cataract and other opthalmic disorders which are not infectious diseases.

(e) Many different types of dental lesions are found in association with the same systemic disorders; for example, no specific type of dental lesion is peculiarly related to rheumatoid arthritis.

(f) Identical dental lesions are found in association with numerous different systemic disorders; for example, periapical granulomata associated with rheumatoid arthritis, scirrhous carcinoma of the stomach, and neurasthenia.

(g) Different members of the same family presenting similar dental lesions, exhibit different systemic disorders.

(h) Patients presenting similar dental lesions exhibit different systemic symptoms when subjected to similar overloads.

(i) The incidence of dental caries associated with vital teeth is greater than the incidence of closed periapical infection, in the majority of systemic disorders where a focus of infection is sought.

(j) The results following the elimination of dental foci of infection in the presence of systemic disorders are various, and bear no relation to any particular type of dental lesions.

(k) The elimination of similar dental foci of infection in clinically identical systemic disorders is followed by different and unpredictable results.

(l) The diagnostic value of the various laboratory investigations associated with focal infection is questionable.

(m) The roentgenographic diagnosis of a dental lesion in the presence of a systemic disorder does not establish a causal relation between the focus and the disease.

From *Journal of the Dental Association of South Africa* **5**:99-100 (February 15) 1950.

DERMOID CYST

of the Tongue

JOSEPH E. SCHAEFER, M.D., D.D.S.,
and RALPH C. RUDDER, M.D., D.D.S., Chicago

DIGEST

Dermoid cysts, although congenital, appear in early adult life. They grow slowly, are freely movable, and must be distinguished from ranula which presents fluctuation, whereas the dermoid cyst, which is thicker and has opaque walls, has the characteristic of a dough-like sensation on palpation and often pits on pressure. This symptom differentiates the dermoid cyst from lipomata and other growths. Treatment is surgical.

A case of dermoid cyst of the tongue which extended down into the neck, producing protrusion of the tongue, is presented.

Case History

The patient, H.G., a male, presented with the following symptoms:

1. Pronounced protrusion of the tongue.

2. The complaint of a growth on the tongue.

Examination—1. A fistulous opening beneath the tongue was revealed by examination, from which a straw-colored exudate was obtained.

2. X-ray examination, following lipiodol injection into the fistulous sac, revealed a large cystic formation which extended down into the neck.

Diagnosis—A tentative diagnosis of dermoid cyst of the tongue was made.

Surgical Technique

1. Under general anesthesia, a midline incision was made underneath the tongue.

2. The cystic sac was dissected free from the tongue with difficulty.

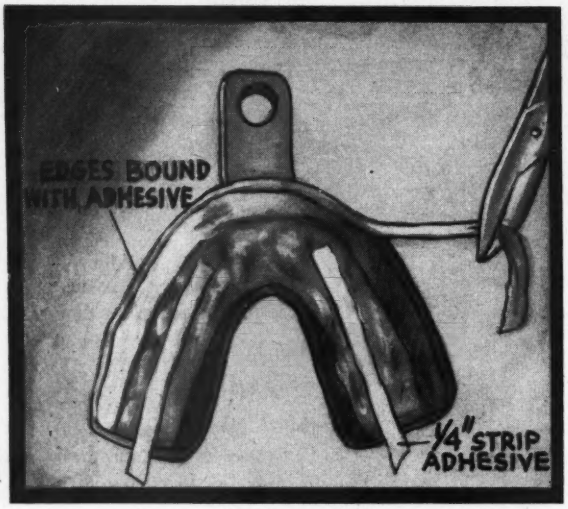
3. The tongue was reconstructed with catgut sutures and the mucous membrane incision closed with silk.

4. The postoperative course of the patient was uneventful.

25 *East Washington Street.*
804 *West 79th Street.*

1. *Roentgenogram showing cystic sac visualized with lipiodol.*

2. *Photograph taken during operation showing dissection of cystic sac from the tongue.*



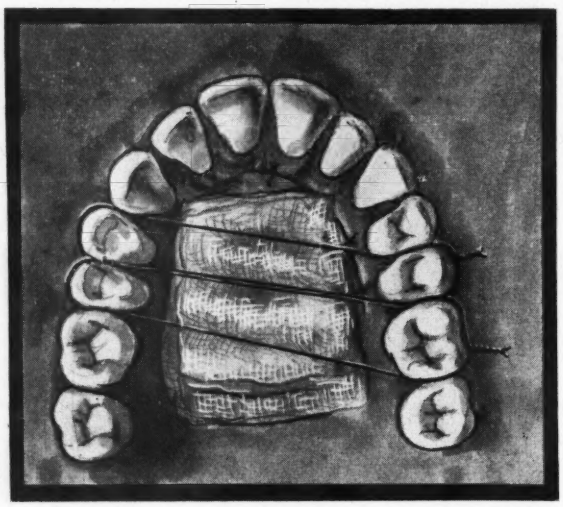
1

Clinical and Laborator

Adaptation for an Impression Tray

Robert F. Wells, D.D.S., Decatur, Georgia

1. When a suitable perforated tray is not available for an impression when using one of the alginates or creams, retention may be secured by using cotton adhesive tape on an ordinary tray as shown in the illustration.

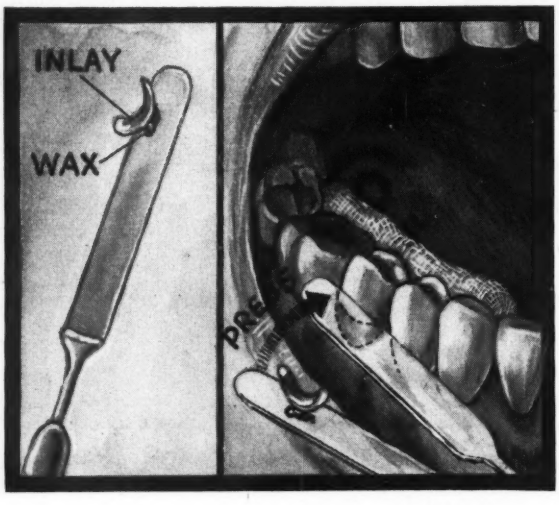


2

Holding Palatal Flaps in Position

Guy W. Smith, M.D., D.D.S., Denver

2. Following surgical procedures in the hard palate the flap is sutured with two or three silk stitches. Ligature wire is threaded across the arch and fastened to the teeth. A gauze pack is held in position under the wire frame. The appliance is kept in position for twenty-four to forty-eight hours.



3

Cementation of Gingival Inlays

Walter H. Ott, D.D.S., Berne, Switzerland

3. Fasten the inlay lightly with wax to a cement spatula. Mix the cement and fill the cavity. Carry the inlay to position on the spatula. A twist of the spatula will break the band between the inlay and the wax.

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SUGGESTIONS . . .

Creating a Wheel Bur

J. Shapera, D.M.D., Rockville, Conn.

4. Using a safe side disc, flatten the end of a round bur. With the same disc flatten the bur where it joins the shank. The wheel bur thus created is effective to produce undercuts for retention in Class V cavities.

4

Softening Inlay Waxes

George Goldfarb, D.D.S., Lancaster, N.Y.

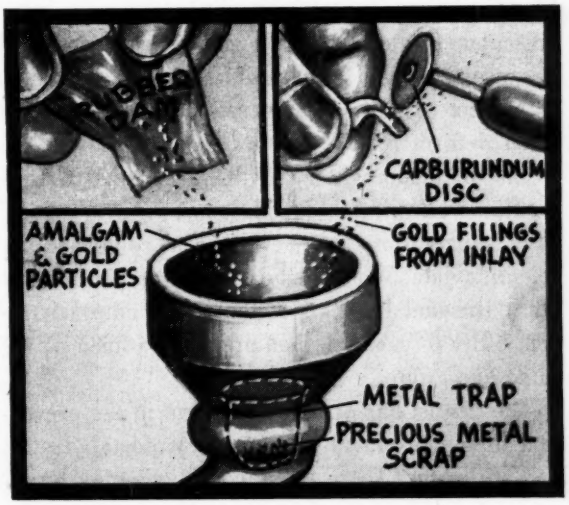
5. Holding a stick of wax between the thumb and forefinger of one hand and keeping the other hand over the flame, the stick is rotated until the wax is fully soft. By this method over-heating is avoided because if the flame is too high it will burn the cupped hand.

5

Precious Metal Recovery

H. S. Susman, D.D.S., Omaha

6. By emptying the rubber dam contents into the cuspidor and grinding all gold restorations into the cuspidor, the metal particles will be washed clean as they pass down the drain to be caught in the precious metal trap.



6

technique involved; and jot down the advantages of the technique. This shouldn't take ten minutes of your time.

Turn to page 230 for a convenient form to use.

Send your ideas to: Clinical and Laboratory Suggestions Editor, DENTAL DIGEST, 708 Church Street, Evanston, Illinois.

The EDITOR'S Page

In speaking before the Odontographic Society of Chicago, Herbert A. Ratner, M.D., Associate Professor of Preventive Medicine at Loyola Medical School, quoted Oliver Wendell Holmes as saying: "Two substantial mammary glands are more advantageous than the two cerebral hemispheres of the most learned professor's brain in the art of compounding a nutritive fluid for infants." The point was being made that there is no artificial substitute or feeding formula that can match human milk for the infant. For instance, different species of mammals have different amounts of lactose. The amount is constant for the given species and increases with the brain size of the species. Thus man has the largest brain and human milk has the highest proportion of lactose. Cow's milk is intended for calves; human milk for infants. A cow's milk formula may put on more muscular tissue, but an infant is not a grazing animal and does better with better brain nutrition. Also the lactose in human milk increases the absorption of calcium and phosphorous and thereby acts as an antirachitic agent. Furthermore, human milk contains all the elements, including vitamins, in their needed amounts and proper proportions.

Breast feeding gives a psychic security that is without price. The child held close to the mother's breast receives a flow of sustaining emotional security as well as a supply of adequate food. Breast feeding is also a form of purposeful work that aids in the development of the facial tissues, including the dental arches. The child that is breast fed is likely to have a well-contoured face with good musculature, well-patterned and formed bone, and fine occlusion and alinement. The bottle-fed baby is subject to artificial forces and leverages that often deform his face.

One of the persistent myths, according to Doctor Ratner, has it that a tooth is lost for every child. This superstition has never been confirmed by scientific data. Women having children are in early adult life and have about the same index of susceptibility to caries as non-pregnant women of the same age group.

The dentist has a role to perform in the prevention of the toxemias of pregnancy, foetal deaths, and stillbirths. These grave conditions may be associated with focal infection and it is, therefore, important that the pregnant woman be free from all forms of mouth sepsis.

The basic philosophy expressed by Doctor Ratner stems from the masters: Hippocrates, Aristotle, and St. Thomas Aquinas. That philosophy may be summarized as such: "Nature makes health through internal homeostatic forces operating to restore and maintain health. All healing is a cooperation with these natural forces. Thus the healing arts are fundamentally an imitation of nature, and can be defined as the art of doing for nature what nature would do for itself if it could. Proper use of tissues and organs promotes health functioning. Disuse or misuse encourages disease and malfunction." Carried into terms of clinical practice for the reinforcement of the nutrition of the pregnant woman that would mean the avoidance of refined sugars. They supply quick calories but have abstracted from them the multiple building stones that are necessary for optimum bodily structure. Instead she should eat all the edible parts that make up the whole of the living thing. In plant food this would mean the tubers, the stems, and the leaves. Thus vegetables should be diversified in terms of these parts. In the consumption of animal protein the same principle should apply. Limiting ourselves to animal muscle, limits optimum nutrition. Sea food is an excellent source of proteins and minerals. The ideal nutritional principle for *anyone* is to satisfy the requirements from natural rather than from artificial sources; with the knife and fork rather than from the pill bottle. A good principle to follow is: Be slow to make nutritional prescriptions until you know the entire history of the patient.

The modern attitude toward childbirth is turning from the surgical-deep anesthesia approach to the natural method in which the mother is a real participant. As part of this regimen of childbirth without fear the mother actively helps in delivery and the baby is with her throughout the hospital stay rather than being isolated from her. The infant is fed upon a demand basis and not by the clock. Early ambulation and early return of tissues and organs to function is part of the modern obstetrical concept.

Emotional Factors Involved in INHALATION ANESTHESIA

M. HILLEL FELDMAN, D.D.S., New York

DIGEST

One of the characteristics of the art of anesthesia is the variability of patient reaction to the same anesthetic under different emotional conditions. Frequently the inhaler has been removed from the patient's face during the early stage of anesthesia, a period characterized by extensive subconscious agitation, and satisfactory anesthesia effected shortly thereafter. A short chat with the patient had allayed apprehension.

Time should be taken to talk to patients before proceeding with the flow of anesthetic gases. It has been the author's observation that a patient who is brought to a mental state where he can smile before going to sleep, will be less prone to offer resistance, conscious or subconscious.

Importance of the Patient's Attitude

For a successful outcome an adult patient must be willing, even anxious, to undergo the anesthetic experience. Children are rarely willing. Induction by force, except in the case of children, is not advisable. A willing patient, psychologically prepared, although physiologically a poor risk, is a more suitable candidate for general anesthesia than the unwilling patient who is healthy and athletic.

The Handicapped Patient—(1) The hypersensitive patient, (2) the handicapped cardiac patient, (3) the asthmatic patient, (4) the aged are all relatively safer risks than the resistant athlete, the alcoholic, or the smoker.

Patient Cooperation—Obstetric anesthesia is a perfect example of smoothness of induction because the patient is willing and anxious to cooperate in any measure that promises relief from suffering.

The Emotional Element—The ability to understand and handle a patient's emotional needs extends the scope and usefulness of the doctor. This is an excellent reason for administering a general anesthetic rather than a local refrigerant, if the emotional element in the patient's makeup is to be considered.

Possibilities of Shock—Although local anesthesia cannot be dispensed with, there are potentialities for shock production by operations performed under local anesthesia. Instances have been noted of patients who have been needlessly brutalized by surgery under local anesthesia where general anesthesia was clearly indicated.

Definition

The word anesthesia, coined by Oliver Wendell Holmes, was meant to convey the idea of freedom from feeling. Only general anesthesia affords complete freedom of feeling during surgery. Local anesthesia frequently grants freedom from evident physical distress but there may exist sinister effects on the emotions. Local chemical agents are attended only by freedom from physical pain, not from psychic trauma.

Essential Manifestations

One of the commonly recognized phases of anesthetic induction is the excitement stage. All textbooks refer to this phase as one of the essential manifestations of the progressive effects of the agents being inhaled leading down to the unconscious state.

Features of Smooth Induction—1. Smooth induction is characterized by no disturbing physical body movements.

2. Smooth inductions do not occur by accident but are related directly to (A) the prepared emotional state of mind of the patient, and (B) to definite well-thought-out attitudes on the part of the anesthetist.

The Hazard of Fear—Unless the twofold pattern of fear which is present when the patient arrives can be dissolved, anesthetic induction is not destined to be smooth.

Subconscious Disturbances—The twofold pattern of fear is a combination of (1) fear of having to endure pain, and (2) complicating subconscious disturbances caused by various domestic upsets and interpersonal social turmoils. Apprehensive patients may find little peace of mind during anesthetic sleep because of subconscious tensions.

Characteristics of Sleep

Sleep Not Always Restful—In the book, *Managing Your Mind,*[1] the author states that sleep does not necessarily release tension. The worries and fears which are the basis of tension continue to operate so that a person may experience the following conditions:

1. Sleep restlessly.

2. Awake from a sound sleep with a pounding heart, and with a sense of acute anxiety.

3. Be disturbed by distressing dreams.

4. Have aching muscles from clenching jaws or hands during sleep.

Excitement not an Invariable Phase—The conditions of normal sleep can be compared to the sleep induced by

[1]Kraines, S. H.: Managing Your Mind, New York, The Macmillan Company, 1947, p. 60.

anesthetic agents. The term, "excitement stage" is, therefore, a misnomer if it is to be regarded as a necessary stage through which *all* patients must pass before reaching the desired surgical plane.

Few Incidents of Demonstrative Excitement—It has been the author's experience that (1) the instances of demonstrable excitement are few enough to warrant the elimination of this term as one of the basically recognized phases of the anesthetic episode, and (2) the overwhelming majority of patients show no physical variation of attitude or response from the moment the inhaler is applied to the face to the moment of recovery of consciousness.

Anxiety and the Dental Patient

In the book, *Psychobiologic Foundations In Dentistry*,[2] the author states the following: "The dentist will do well to face the unpleasant truth that his services are not looked upon with a pleasurable feeling tone. His services are appreciated, valued, considered necessary and important, but they are not liked. People have fears, anxieties, phobias, and the entire galaxy of psychiatric states to describe their attitudes toward the dental experience. The better we try to understand the nature of these feeling tones, the more satisfactory will be the interpersonal relationship. No drug or anesthetic agent can be a substitute for human understanding and faith."

Premedication

The administration of hypnotic drugs prior to anesthetic induction has been discontinued by the author because these drugs do not quiet the troublesome patient. *The troubled patient is the troublesome patient.* The slight stupefaction produced by a hypnotic drug administered twenty minutes to half an hour before surgery bears no positive salutary effect. Patients have been observed to be only apparently submissive to efforts to proceed with the induction.

Reasons for Discontinuing Premedication—1. The resistance offered by premedicated patients as the anesthesia deepens.

2. It is unnecessary to medicate all patients routinely because of difficulties encountered with a few resistant types.

3. A patient should leave the office in as clear a mental state as he arrived. Stupefaction is of no advantage in the office.

4. Premedication with drugs potent enough to depress (1) the center of respiration, and (2) the blood pressure to dangerous levels is questionable practice.

Drugs not a Substitute for Understanding and Faith[2]—"If the dentist, in his mechanistic preconception approaches the dental operation as a mechanical procedure to be performed on an inorganic thing, he may expect all manner of fear exhibitions regardless of the anesthetic agent that he uses or the excellency of his technique. These are simple truths, but simple truths are the easiest to forget."

Factors in Achieving a Successful Anesthetic State

The following suggestions may be helpful to the dental anesthetist in achieving a successful anesthetic state suitable for the comfortable execution of the surgery planned:

1. The potential surgical difficulties attending the forthcoming operation should not be discussed. Disturbing thoughts planted in the patient's mind in advance of surgery tend to encourage emotional activity with its uncontrollable subconscious resistance.

2. If the patient has a tendency to gag, it is unwise to insist on intraoral film placement after one or two attempts. (1) Discontinue the x-ray procedure entirely, or (2) make an extraoral exposure. Upsetting a patient with difficult or painful intraoral efforts fosters disturbing emotions as anesthesia is induced.

3. The placement of a mouth prop in advance of anesthetic delivery, although important, is sometimes attended by emotional reaction. The prop can be adjusted temporarily at the incisor region, and readjusted in the posterior region later.

4. Evidence of apparent discomfort shown by the patient as the anesthetic flow is initiated must be heeded. Efforts of the patient to tell that (1) the prop is pinching his lip or tongue, (2) the rim of the inhaler is pressing painfully against his sore cheek, (3) the prop is slipping, or (4) his denture, which may have been overlooked, is loose in his mouth should be recognized. To ignore these signals and to misinterpret them as "excitement," forces disruptive resistant attitudes.

(It is not known how frequent a factor such an attitude may be in the etiology of anesthesia episodes that terminate life itself, because associated with the incident there must inevitably enter the probability of a resort to restricted oxygen delivery by the anesthetist).

5. Do not refer to the anesthetic agent as "gas" unless the patient has already referred to it by this term. To some minds, the word "gas" has sinister association with asphyxiation and poisonous fumes.

6. Ask the patient if he has ever had an anesthetic to go to sleep. Tell the patient (1) that he may have a local anesthetic around the tooth, or (2) inhale some oxygen anesthetic to go to sleep for a few minutes. Assure him that either way is painless.

7. Except on rare occasions it is not advisable to use the eyelid reflex test as the patient is approaching the first plane of anesthesia. The patient may respond vigorously to the test, being still awake, because he imagines operation may begin before he is fully asleep. Many of the so-called excitement phenomena start here. The basic respiratory test is advised.

8. It is unwise (1) to rearrange the operating apron that has been draped over the patient, or (2) to adjust restraining belts while the patient may yet be conscious. Misleading impressions may plant antagonistic subconscious revolt.

9. Important: Do not raise the patient's arm to test deepening anesthesia because this may be raising prematurely the arm of the victor in the ensuing struggle between the anesthetist and the patient.

[2]Ryan, Edward J.: Psychobiologic Foundations in Dentistry, Springfield, Illinois. Charles C Thomas, 1947.

Conclusion

1. The following is a statement made by Doctor Bernard Raginsky of Montreal, Canada: "It is false to suppose that the personality of the anesthetist is innocuous, that it is nontoxic, and does not throw any strain on the patient's heart, liver, or kidneys. The proficiency of an anesthetist depends as much on aptitudes and capacity as on schooling and experience, and as in other spheres of human endeavor, certificates of qualification and degrees do not afford an entirely reliable means of measuring efficiency."

2. A study of the emotional elements involved and an adequate approach to their solution are tantamount to successful anesthesia service.

730 *Fifth Avenue.*

MEDICINE and the Biologic Sciences

The Tuberculin Test—Significance

It is indeed fortunate that we have available a specific test for tuberculosis. The tuberculin test will indicate the presence of the disease while the lesions are microscopic and cause no symptoms.

When tuberculosis develops in the human body it can be detected by the tuberculin test within three to seven weeks after the invasion of tubercle bacilli occurs. The lesions are usually still microscopic and no phase of the examination of the living body, including x-ray inspection, is capable of locating them.

The tuberculin reaction indicates that lesions are present and that they contain living tubercle bacilli. A definite diagnosis of primary tuberculosis is justified. Persons with this condition are potential cases of reinfection or clinical disease. Therefore, the parts of the body that clinical lesions frequent should be periodically examined before they cause symptoms or become contagious.

The development of clinical tuberculosis among tuberculin reactors is largely dependent upon whether exogenous or endogenous reinfection occurs. Clinical tuberculosis develops in a sufficient number of tuberculin reactors to make periodic examination of all reactors worth while. Nearly everyone who on first examination is found to have clinical tuberculosis is a tuberculin reactor.

The sensitivity of the tissues that results in a tuberculin reaction is present in all such cases before clinical disease develops. Had the sensitivity been detected earlier by the tuberculin test the lesions would have been found in most cases long before symptoms appeared which brought the person to the physician. This procedure is logical and practical and is at present the only one at the physician's command for diagnosing (A) primary, and (B) clinical tuberculosis in the course of development.

The tuberculin test is important in differential diagnosis. Tuberculosis infection is now far from universal among adults. Still, there are areas of considerable size in the United States where 25 per cent or less of adults react to tuberculin. Therefore, the tuberculin test is no longer one for children but is equally valuable among adults.

When a lesion, either thoracic or extrathoracic, is suspected of being tuberculous, a characteristic tuberculin reaction alone does not prove that it is tuberculous. However, it indicates that the person is infected with tubercle bacilli and, therefore, the lesions may be tuberculous. On the other hand, if the individual fails to react to tuberculin in sufficient dosage, properly administered, it is excellent proof that the suspected lesion is not tuberculous.

It is hoped that with the development of new therapeutic agents one will be found which will definitely be germicidal for tubercle bacilli. When such a drug is available, its greatest value will be in attacking tubercle bacilli as soon as possible after they invade the tissues. The developing primary lesions are usually small and vascular so a drug would be expected to reach the tubercle bacilli promptly after administration. When the tissues are found to be sensitized to tuberculin, the drug should be administered immediately.

The physician should know the tuberculin sensitivity status of all his patients. This information should be kept up to date by retesting the nonreactors at least annually and more often in the event of any known exposure to contagious cases of tuberculosis.

As an epidemiologic agent the tuberculin test exceeds by far everything else that has been employed. Finding the tuberculin reaction is locating the trail of a contagious case of tuberculosis.

Myers, J. Arthur: The Tuberculin Test, J. Michigan M. Soc. **48**:1363-1364 (*November*) 1949.

Fatigue and Nervousness

(1) Fatigue of a chronic nature, and (2) nervousness, are relatively common. They usually present a comparatively simple diagnostic but a difficult therapeutic problem. However, the diagnosis also may be difficult at times. That the therapy is indefinite is indicated by the wide range of measures which have been used in treat-

ment. Almost every known drug and surgical procedure have been used.

Nervousness and fatigue are two of the commonest symptoms arising from emotional or neurotic disturbances. The complaints also arise from a number of physical disturbances.

Just as the therapy is quite diverse so is the terminology describing the condition. The following terms have been used to designate this group of patients: (1) Chronic nervous exhaustion, (2) asthenia of various sorts, (3) psychoneurosis, (4) benign nervousness, (5) constitutional inadequacy or inferiority, (6) functional disorder, (7) anxiety state, and (8) depression.

The following are some of the symptoms that have been attributed to the condition:

1. A continued subjective sensation of tiredness which cannot be accounted for by fatigue from effort.
2. Weakness, lack of energy and ambition.
3. Nervousness, unrestful sleep or insomnia.
4. Melancholy, tachycardia, and pains and aches in various parts of the body.

Other symptoms frequently include: (1) Anxiety, (2) irritability, (3) inability to relax, (4) fatigue in the morning, (5) mental conflicts, (6) difficulty in making decisions and symptoms specifically related to dysfunction of the various organ systems, particularly the gastrointestinal and cardiovascular systems.

The diagnosis should be made on the basis of the positive evidence of symptoms characteristic of these disorders. These symptoms include: (1) Globus hystericus, (2) sighing respiration, (3) difficulty in getting a deep breath, (4) cardiovascular instability, (5) inability to concentrate and remember, (6) inability to work or read for prolonged periods, and (7) disappearance of symptoms at night with rest in bed. Multiple unrelated complaints are often noted: (1) Fatigue which is worse in the morning than in the afternoon, (2) a history of nervous breakdowns in the patient or his family, (3) parathesias after hyperventilation, and (4) excessive emotional reactions.

The management of the patient with fatigue and nervousness is largely an art. It relies on the art rather than the science of medicine. For this reason many charlatans and cultists without adequate training in the basic medical sciences are frequently highly successful in the management of patients with functional nervous disease.

There are three cardinal principles in the successful management of the nervous and exhausted patient:

1. The patient must be convinced of his diagnosis.
2. The patient's symptoms must be improved or relieved.
3. The patient must be kept largely symptom free and once improvement has occurred, relapse must be prevented.

It is absolutely necessary that (1) an adequate history, (2) thorough physical examination, and (3) necessary laboratory and roentgenologic studies be completed in order to establish the diagnosis. The physician will usually know then why the patient has nervousness and fatigue. The usual causes include:

1. An emotional or situational problem.
2. Overwork with inadequate rest and relaxation.
3. An anxiety state.
4. Constitutional inadequacy.
5. Asthenia following infection in a susceptible person.
6. A psychotic trend.
7. A combination of any of the factors named.

Improving or relieving the patient's symptoms is an individual problem in each case. It cannot be accomplished until the patient understands the nature of his symptoms and accepts it reasonably well.

To keep the patient well it is important (1) to educate him effectively, and (2) to aid him in maintaining a proper psychologic balance. Usually by the time he has completed his recovery or is much better the patient has learned fairly well how to manage himself. Most of all he has recognized the causes of his previous conflicts and has learned to conquer and control these conflicts.

The prognosis is good for patients with simple tension and fatigue states, particularly when anxiety can be relieved and fatiguing work restricted and rest prolonged. For patients with (1) significant constitutional inadequacy, (2) pronounced emotional disturbance, or (3) prolonged economic and environmental problems to which the patient is not accustomed and which cannot be altered the outlook is not good. Neither is the outlook good for those patients who have had multiple operations with or without permanent physiologic disturbances. However, 10 to 20 per cent improvement may be enough to make life worth living again.

Wilbur, Dwight L.: Clinical Management of the Patient with Fatigue and Nervousness, J.A.M.A. **141**:1199-1204 (*December* 24) 1949.

Shoe-Fitting Fluoroscopes

Recently questions have been raised concerning the merits, the necessity, and the dangers of the use of fluoroscopes in the fitting of shoes, with particular reference to the machines found in shoe stores:

1. Is it necessary to employ the fluoroscope to obtain a properly fitting shoe or is it a promotional fad employed as a means to impress the customer and increase sales?
2. Should there be any regulations to govern and control the use of the fluoroscope to protect (A) the public, and (B) the employees from suffering ill effects from radiation injuries?

X-ray shoe fitters are multiplying rapidly throughout the country. This is especially true in children's shoe stores.

Independent studies have been made to determine (1) the amount of exposure to radiation received by the customer, and (2) by clerks and others within the area of the machine. Some leakage through the opening in which the customer places his feet was noted.

One investigation concentrated on the possible injuries which may result from the uncontrolled use of low voltage x-ray machines in shoe

stores. It was found that the most likely injuries were: (1) Interference with normal foot development of children who are repeatedly fluoroscoped when being fitted with new shoes, (2) acute radiation burns of the customer's feet, resulting in late permanent skin injury, and (3) chronic radiation injury to blood-forming tissues of shoe employees who work with improperly shielded x-ray machines.

There is considerable variation in the output and the protection provided by the machines in use. Although the majority of machines bear the plates of safety organizations or inscriptions that the manufacturers have complied with the provisions of the "Safety Codes for the Industrial Use of X-rays," the amount of radiation received as direct radiation by the customer and as scattered radiation by the salesforce represents a real potential hazard.

The hazard lies in the indiscriminate use (1) by salesmen ignorant of the potential danger or (2) by incompetent operators and unsupervised or untrained personnel.

Most machines are equipped with push button automatic timers. The most popular setting appears to be twenty seconds. However, this varies from five to forty-five seconds. Here the danger lies in the repeated exposures which anyone can make by releasing and pushing the button.

In some stores unattended children amuse themselves by playing with the machines. They expose hands as well as feet and receive excessive doses of radiation.

The ultimate conclusion is that if shoes can be fitted as well without the fluoroscope, the machine should be dispensed with entirely. If fluoroscopy is of merit, only qualified operators should be employed. This is necessary for the protection of the customer as well as the employee.

Editorial: Shoe-Fitting Fluoroscopes, Internat. M. Digest **55**:309-310 (*November*) 1949.

Editorial: A Common Radiation Hazard, New England J. Med. **241**: 346 (*September* 1) 1949.

Allergy and Tonsils

It is well known that in many children tonsil and adenoid tissue is found subsequent to surgical removal. Faulty surgical technique accounts for some of these cases. But an unknown factor seems to be responsible for many.

Some clinicians have noted that if an undiagnosed and untreated allergic disease was present many of the children who had a tonsillectomy and an adenoidectomy had a regrowth of the tissue. When the allergic symptoms are properly treated in children who require the removal of tonsils and adenoids, the incidence of regrowth of lymphoid tissue in the tonsil fossae is negligible. It is about 3 per cent as compared to 27 per cent in undiagnosed and untreated allergic conditions.

It seems advisable to recommend that a thorough allergic study be made in these children. Also it should be remembered that symptoms of allergy are usually not relieved by removal of tonsils and adenoids. Early diagnosis and specific treatment are the most effective measures for symptoms due to allergic disease.

Clein, N.W.: Allergy and Tonsil Problems in Children, Ann. Allergy **7**:329-334 (*May-June*) 1949.

Eczema of the Hands

For practical purposes eczema of the hands may be classified in two forms: 1. It may be self-limited as in occupational eczema of the hands where the skin becomes "hardened". 2. The condition may be a permanent state in which remissions and exacerbations alternate.

A familial history of eczema or a history of infantile eczema is significant as it indicates an "eczematoid diathesis". Eczema or dermatitis of the hands consists of a vesicular scaling, oozing or weeping, crusted or infected eruption of the hands.

In the acute phase it is characterized primarily by vesicles and erythema. Scaling and erythema are noted in the subacute phase. And in the chronic phase, thickening or lichenification and scaling are characteristic.

Eczema due to a known factor is similar to that rising from an unknown factor. In general, the causes are, (1) fungi, (2) occupational irritants, (3) infection, (4) drugs, (5) nervous disorders, and (6) unknown causes.

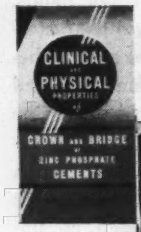
The presence of an acute vesicular eruption indicates that the skin is hypersensitive and is more prone to react unfavorably to therapeutic agents that are not mild and soothing. Applications containing grease do not absorb the serum exuding from the ruptured vesicles and are usually uncomfortable.

Applications should be of a type that are not sticky, do not stain, and are easily removed. When an extensive vesicular eruption involves the greater part of both hands, wet dressings kept on continuously often will prove best. The use of 0.5 per cent solution of aluminum subacetate or boric acid in 1 or 2 per cent solution applied in a large "boxing glove" type of fluffy dressing usually is soothing. The gauze adjacent to the skin must be kept wet which may necessitate its frequent immersion in the solution.

When evidence of secondary infection is present, bacitracin in strength of 500 to 1,000 units per cubic centimeter proves a good wet dressing. During the subacute phase, a soothing lotion or mild ointment may be employed.

In the chronic states, stimulating ointments should be used, such as 1 per cent coal tar or salicylic acid. An eczematous hand is a sensitized hand and reacts unfavorably to many applications. It may be better to use applications in weaker rather than stronger dilutions. Overtreatment reactions as the result of using agents too strong is a common dermatologic problem.

O'Leary, P. A.: Eczema of the Hands, J. Kansas M. Soc. **50**:265-269 (*June*) 1949.



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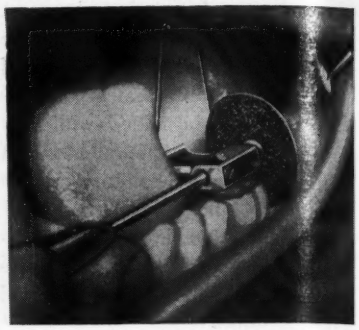
Contra-Angles

The Genius of Kukla, Fran, and Ollie

I am a recent convert to television. My early impressions of this medium were unfavorable. Not until Kukla, Fran, and Ollie came into my life over NBC was I ready to concede that television had a place in society. I had heard about this trio but the thought of a couple of puppets of cotton and string with voices supplied by a man left me without enthusiasm. It might be all right for a one-shot but as a steady form of entertainment it sounded dull and immature. But that was all before I discovered these delightful people.

You note that *people* is not confined by the usual quote marks that should be used when we refer to people who are not persons. Now I know what the Celts mean when they refer to their "little people"—the leprechauns and the elves. Although I have looked hard enough in forest glens at twilight and in the soft moon shadows, I have never seen a leprechaun. I had an uncle who saw them long go in County Tipperary but he could never evoke them for me on the prairies of Illinois. Not until the modern machine of television came along and I met Kukla and Ollie did I begin to believe in the "little people." I had no trouble accepting Fran Allison for I have known other fine and attractive women.

It would be hard for me to say who I love the most, Kukla or Ollie. If you are unacquainted with my friends, I will try to introduce them to you. Kukla is a bald fellow with a large round nose and a pair of little black eyes under inverted V eyebrows. From that description he doesn't sound at all prepossessing, he sounds something like a clown. But that he is not. He is a serious little man upon



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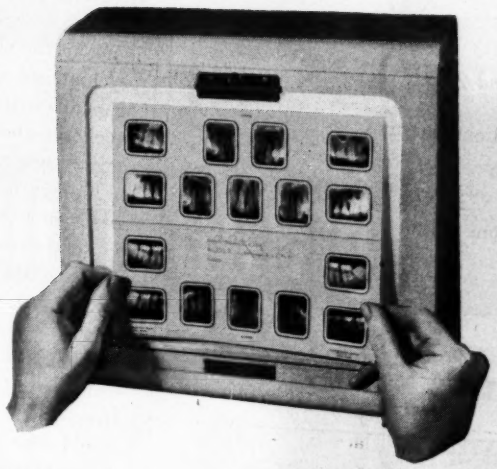

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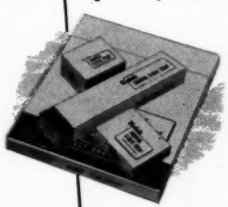

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CLINICAL AND LABORATORY SUGGESTIONS

(*See pages* 220 *and* 221)

Form to be Used by Contributors

To: Clinical and Laboratory Suggestions Editor

DENTAL DIGEST
708 Church Street
Evanston, Illinois

From: _____

_____

Subject: _____

Explanation of Procedure:

Sketch:

Suggestions submitted cannot be acknowledged or returned.

$10 will be paid on publication for each suggestion that is used.

whose cotton shoulders the heaviness of the world often rests. He is at times gay and tries so hard to be carefree. His prevailing temperament is attentive and serious but certainly he is not in the class that the humorless psychiatrists would label compulsive or manic-depressive. There is nothing psychotic about Kukla. He is more normal than most people. He is helpful, thoughtful, and conscientious. He speaks in a voice of high note, but it is not the voice of strident tension. Someone has called Kukla wistful and I think that word fits him as well as any.

Ollie is a dragon with one front tooth whose full name is Mr. Oliver Dragon. He is as carefree as Kukla would like to be. Ollie approaches the problems of the world without deep undertones. Kukla sees the shadows and the substance; the consequences, and the complications. Ollie is without these fine perceptions. He is a practical fellow of direct action. We all have other friends like him and love them, too, even their boastful moments, and their vigorous extraversions.

The genius of Burr Tillstrom, the creator of Kukla, Ollie, and the other characters is in his deep understanding of human nature. He has not created stereotypes but personalities as variable as the winds. Most entertainers are so monotonous in their methods that they can be readily predicted. One can anticipate how Eddie Cantor will sing, know beforehand the studied nonchalance of Arthur Godfrey, the reaction of Edgar Bergen and his characters. These entertainers change their scripts and their situations but the basic nature of their programs does not change. Not so with Burr Tillstrom. Kukla and Ollie never escape entirely from the framework of their essential personalities but their mood swings and variable tides of emotion are as natural as life itself.

It would be far-fetched to put Burr Tillstrom in a class with William Shakespeare but one thing that they have in common is a penetrating intuition and understanding of man's temperament. Anyone who can put words on paper and create convinc-

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"the Difference is Distinctive"

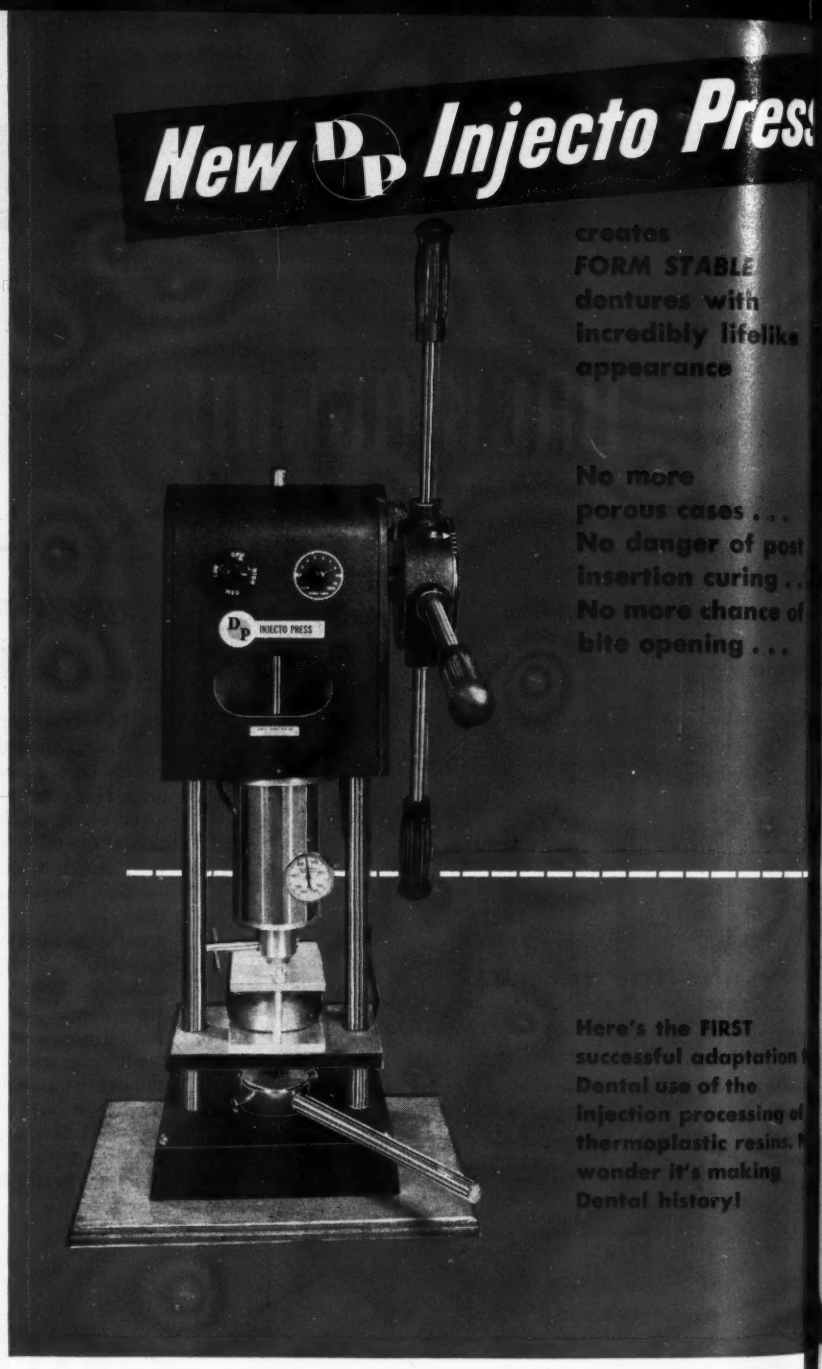
ing characters before our eyes has a genius. The characters that Shakespeare put on paper are as real to us as many persons we have seen and known in the flesh. To infuse warmth and feeling and reality into puppets of cotton and string requires a similar kind of genius. It is possible that the pictures and the recordings that are made today of Kukla, Fran, and Ollie will give future generations a better idea of our life and times than can be had from important papers that are hidden away in the archives.

Neither Kukla nor Ollie is a foil for the other's witticisms. There is nothing of the old vaudeville team, nothing of the dunce-professor routine. They are as natural as two friends meeting without an audience. They never pander for applause and never strain at their humor. I have no way of knowing how Mr. Tillstrom performs his feats but I doubt if he follows a rigid script. Kukla and Ollie do not sound as if they were reading lines. I have a feeling that the creator has lived with his characters so long and has identified himself so closely with them that he has fun being with them and entering their world of phantasy. There is nothing in the program to suggest that Mr. Tillstrom is laboring at a job.

Fran Allison is not without genius. She must be a well-integrated human being to understand her friends Kukla and Ollie so well. She never tries to win approval for herself at their expense. She treats them with profound respect and affection. I have never seen her try to steal a scene or inject herself upon the center of the stage. She visits with these two friends without a show of condescension. They, in turn, show their affection for her with gentlemanly restraint. I have the feeling when I see the fine looking woman, Fran Allison, with Kukla and Ollie that the three of them are having a grand time together.

It is some temptation to try to project a moral from the work and lives of Kukla, Fran, and Ollie. I suppose that originally the characters were created for the entertainment of children and that later the parents forced the children into the background so they could see the show themselves. I hope the children still like the program as much as do their elders. I hope it is more popular with children than the blood and turmoil of cowboys and gangsters on the air. Any child can learn the lessons of decent and good conduct from knowing Kukla, Fran, and Ollie.

I am at a loss to understand how a writer in the sophisticated *New Yorker* could call this "high level stuff" in a derogatory manner or call the conversations between Kukla and Ollie "obscure." It is true that this program is a long way from the Jack and the Beanstalk of my youth. So are the kids who have been conditioned by the movies, the radio, and the comic strips to a level unheard of forty years ago. I hope that Burr Tillstrom won't change his program formula because one critic doesn't like it. It would be regrettable if Mr. Tillstrom changed his program and began to talk *down* to children. I have found that they expect to be treated as people and



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Commentators much better prepared than I have said that television is returning the American family to the home and once again the hearthside will be the center of American life. A family gathered together before the evening meal watching the changing tides in the affairs of Kukla, Fran, and Ollie will receive a fine lesson in friendliness and understanding. No family can do better than that! —E. J. R.

Treatment of Sensitive Cervical Areas Of Teeth With Hot Oil Applications

JOHN SEABORN McKENZIE, D.D.S., Miami, and ARVIN WILLIAM MANN, D.D.S., Ft. Lauderdale, Florida

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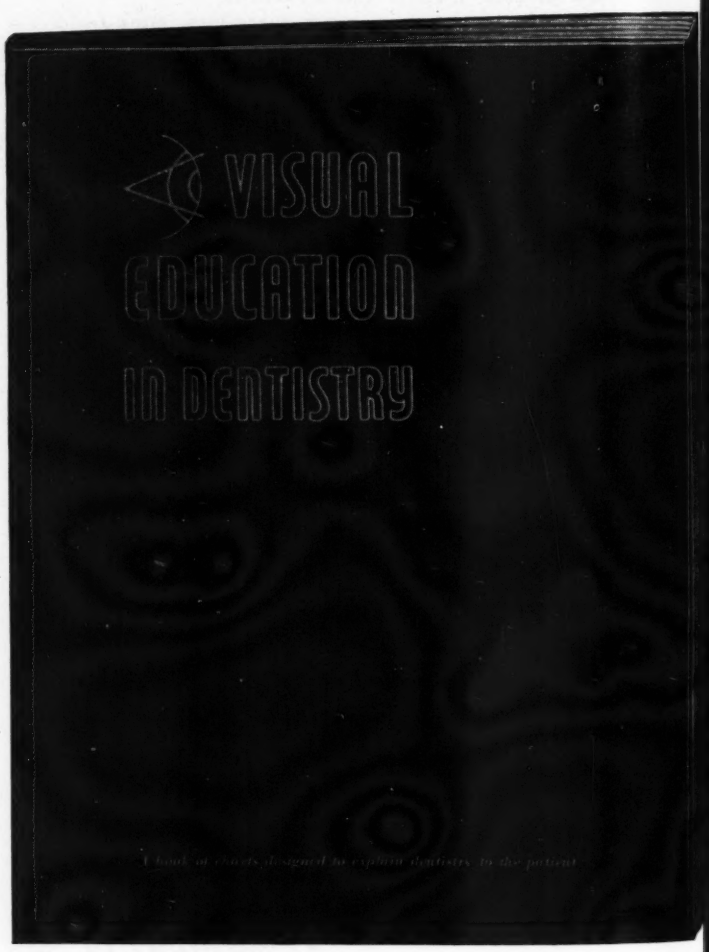
A Practical Method Sought—The present preliminary report records observation undertaken to find a more satisfactory treatment for sensi-

(*Continued on page* 236)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8. The Development of Root-End Infections
9. A Stitch in Time Saves Nine
10. When the Dentist Fills the Tooth
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12. The Development of Jaws and Teeth
13. Diseases of Teeth and Trees
14. The Collapsed Face
15. The Dangers from Pyorrhea
16. "Be Not the Last to Lay the Old Aside . . ."
17. The Foundation's the Thing
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22. The Action of Local Anesthesia
23. "A Little Neglect May Breed Mischief . . ."
24. The Fifth Cranial or Trigeminal Nerve
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★ ★ ★

If you live near Quincy, Illinois or within air-shot of that town, you probably know all about "Doc's Air Park"—the airport and aviation school established and owned by Doctor James E. Haffner, practicing dentist and former dental officer of the Army Air Force. Whether you travel on wings or wheels, you will find enjoyment and relaxation at the "air park." Even the arm-chair traveller will enjoy reading Guy Lemmon's description of "Doc" and his remarkable spare-time business-hobby.

★ ★ ★

Doctor Alexander Marshall, in his article, "The Unknown Element, Psychosomatics," cautions dentists against classifying uncommon symptoms as psychogenic in character without first making an exhaustive search for a possible physical origin.

★ ★ ★

Are you buying or selling a dental practice? . . . Harold J. Ashe tells the buyer to "Check the Seller's Income Tax Return," and advises the seller to use his tax return as proof of the productiveness of his practice. Other helpful ideas on the buying and selling of a practice are included in the article.

★ ★ ★

Are you losing time your assistant might be saving for you? Then clip Jean Thomas's article and leave it on your girl-Friday's desk. (It may save *her* time, too.)

★ ★ ★

Doctor William C. Poulson recommends painting as a hobby for dentists—as a source of pleasure and as a means of developing keener visual perception. The fine pictures reproduced with this article show that Doctor Poulson's thirty years of painting-for-fun have brought him rich reward in achievement.

(*Continued from page* 233)

tive areas of teeth. The record is based on observation of patients over a five-month period.

Material and Method

1. Twenty adult patients were selected at random from the authors' personal practices.

2. The only criterion for selection was that the patient must have made a bona fide, spontaneous complaint of cervical sensitivity of the teeth.

Distribution by Age—1. Between twenty and thirty years of age, 3 patients. 2. Between thirty-one and forty, 10 patients. 3. Between forty-one and fifty, 3 patients. 4. Over fifty years of age, 4 patients.

No Discrimination—No attempt was made to clean up the mouth before instituting treatments.

Instrument—An applicator for hot olive oil was made from an old toothbrush as follows:

A) A handle is cut from a toothbrush head.

B) The handle is shaped and a tapering hole is drilled near the end.

C) A round toothpick is inserted in the tapering hole.

Procedure

1. A small amount of medicinal olive oil was heated almost to boiling in a small container.

2. A round toothpick held in a holder, described above, was dipped into the oil, carried to the tooth, and applied to cervical areas.

3. This procedure was repeated until all cervical areas on the left side of the mouth had been treated which usually required five to ten minutes.

4. The entire procedure was repeated daily until sensitivity disappeared.

5. Exact records were kept of the number of days necessary to accomplish the desired result.

Control Area Retained— The untreated right side acted as a control area to test sensitivity changes and avoid reliance on false information from the patient.

Treatment Discontinued—When sensitivity had completely disappeared on the treated left side, (1) the hot oil applications were discon-

tinued, and (2) the patient was closely observed to determine recurrence of symptoms in contrast with possible change in sensitivity in the untreated right side.

Observations

1. In sharp contrast to the sensitivity which persisted in the teeth of the untreated right side, desensitization in the treated side was obtained after varying lengths of time in *all* cases.
2. Up to the present there has been no recurrence of sensitivity in the areas treated.
3. Twelve cases were desensitized in the first five days.
4. Four cases took ten days.
5. The remaining cases took from five to fourteen days for complete desensitization.
6. No correlation between the age of the patient and his response to treatment was noted.

Conclusions

1. The length of time needed to make a sensitivity disappear was not directly proportional (A) to the degree or (B) to the amount of original sensitiveness.
2. The response was not proportional to the degree of cleanliness of the mouth.
3. Copious saliva cooled the oil, thereby retarding desensitizing, although neither (A) burnishing hot oil into the areas treated, nor (B) drying the tooth hastened desensitization.
4. The exercise of extreme caution to prevent blistering or burning of the gingiva was not necessary.
5. Response was slower in freshly denuded cementum; for example, postgingivectomy cases.
6. In no instance did hot oil applications stain or discolor tooth surfaces.

Discussion

1. Even the most stubborn cases in this study responded to hot oil treatment, although sensitive areas around recently placed metallic restorations were the most difficult to desensitize.
2. Sensitivity of the untreated teeth in the right side did not diminish during the period of observation.
3. Because it is not necessary to prepare the mouth before treatment can be made effective, preliminary treatment with hot oil should make it possible (A) to conduct regular prophylaxis procedure without pain, and (B) minimize the discomfort of postgingivectomy and subgingival curettage treatments.
4. Although the procedures in this study were carried out in the office to ensure control of research data, there is no reason why the patient cannot apply the oil at home in routine practice.

From *Oral Surgery, Oral Medicine, and Oral Pathology* **2**:1558-1561 (December) 1949.

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